Online Appendix: Bias in Cable News: Persuasion and Polarization

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This appendix contains additional information on the data, estimates of alternative specifications, and other details on the model and estimation.

Data Construction

A1. Nielsen FOCUS Lineups

The Nielsen FOCUS data set were provided in two formats. For the largest 55 DMA's, we were given yearly spreadsheets for each DMA. For the DMA's ranked 56 to 210, we were given a CSV file with all systems and years. We stacked all the 1-55 DMA spreadsheets with the 56-210 CSV file. An observation in the main combined file is a cable system-year-channel. A separate file links cable system-years to zip codes. We dropped any cable system labeled "-ADS" or "APTS". These system correspond to alternative delivery systems for single apartment buildings. We synchronized cable channel names across years and system by manual inspection.

The three main challenges with these data are that some zip codes have more than one cable system which serve it, and some cable systems have multiple "devices" whose lineups sometimes, but not always, differ, and some cable system devices have multiple channels listed in a channel position. To deal with the first issue, we first kept the cable system which reports the highest number of total subscribers (across all zip codes). To break ties, we then considered which cable system had the highest number of county subscribers, the most homes passed, and the highest number of channels, and at random, in that order. 124252 ties are broken by total subscribers, and a total of 222 further ties broken by the other criteria. In the case where a device listed two channels in the same position, we kept the channel if it was a news channel, and at random if no news channel was involved. If a channel showed up in two different positions, we used the minimum channel position.

We first dropped any device labeled "COMMUNITY SPECIFIC" or "UNIQUE SITUATION." These were always in systems which had other devices that were labelled "DIGITAL" or "REGULAR." In cases where two devices did not have any overlapping channel numbers, we combined the two devices into one. For systems with multiple devices, we kept the device with the most number of channels. This is often innocuous as the devices would be nested and have the same channel positions for most of the basic channels. If multiple devices had the same number of channels, we kept the device that was labelled "DIGITAL," if possible. If not, we kept the device labelled "REGULAR." These conditions broke all ties.

We dropped any system which did not report carrying any of the top 60 cable channels by Mediamark viewership after the cleaning. These are likely due to error in the cleaning process and correspond to 587 zip code-years out of 522,139 zip code-years (0.11%).

The number of channels variable corresponds to the total number of non-empty channel positions in the cleaned cable lineup. We dropped any pay-per-view channels, channels labeled "BLACKOUT," program guide channels, split-channels (e.g. "Nick at Nite" which is the evening version of Nickelodeon), and HD channels. The number of broadcast channels variable corresponds to the total number

of channels that have an associated over-the-air channel number.

A2. Nielsen Viewership Data

We use zip code-level viewership data from Nielsen Local Television View (NLTV) for the years 2005 through 2008.

Sample selection

We downloaded reports from the NLTV interface for zip code level ratings aggregated for each year separately in any zip code where the estimated sample size in the report interface was positive. We used the 5am-5am daypart, and all persons 18 and over. Each zip code year had 9 observations: three for each of CNN, Fox News Channel, and MSNBC. Within each channel, we had a rating for all television households, a rating for households who subscribed to cable television, and a rating for households who subcribed to Alternative Delivery Systems (ADS) which are defined as "Satellite (C-band), DBS (KU-band), SMATV (master antenna), MDS (includes multi-channel, multi-point and multi-point distribution service) and Broadband Only." (http://en-us.nielsen.com/sitelets/cls/documents/nltv/NLTV-CharacteristicDefinitions-Diary.pdf). DirecTV and Dish Network are DBS providers.

Matching to lineup and availability data

We match this data set to the Nielsen FOCUS lineups by the zip code and year.

A3. MRI-Simmons Viewership Data

We use individual-level viewership data from two sources: Mediamark Research's Survey of the American Consumer and Experian Simmons' National Consumer Study. We use Mediamark data from 2000 to 2007, and Experian Simmons data for 2008. In this section, we detail the steps we took in cleaning and combining these data sets.

Sample selection

We included in our sample any respondent who responded to all relevant demographic characteristics: race, income, education, age, and gender. We also required the respondent to have a valid zip code.

Demographics

We make some simplifications to the demographic questions, as follows. First, racial categories are simplified to three dummy variables, for white, black, and hispanic respectively. The excluded category is all other racial categories. Education variables are reduced to a single dummy variable for having completed at least a bachelor's degree.

Household income comes in binned indicator form in the raw data. For example, there is an indicator for household income of "$15,000 to less than $25,000." We convert these indicators to a continuous variable by computing the expected value of a log-normally-distributed random variable, conditional on the variable falling within the bin boundaries.[41] The parameters of this distribution are calibrated to match the shares of the national population falling into each of the income bins collected by the US Census Bureau. All respondents in the same income bin are, therefore, assigned the same level of income.

Viewership of Cable Channels

Both surveys ask about the number of hours viewed in a given week for a variety of television channels. This study uses responses to CNN, the Fox News Channel, and MSNBC. Mediamark asks whether the respondent watched any amount, as well as a multiple choice question for each channel with the following options: 1 hour, 2 hours, 3 hours, 4 hours, 5 hours, 6-9 hours, 10 hours, 11-15 hours, 16-20 hours, and 21+ hours. Experian Simmons also asks whether the respondent watched any amount, and a multiple choice question for each channel with the following options: Less than 1 hour, 1 hour to less than 3, 3 hours to less than 5, 5 hours to less than 7, 7 hours to less than 10, and 10 hours or more. We assigned the midpoint of each interval as the hours watched for that respondent when possible.[42]

Cable or Satellite Subscription

We also use whether the respondent subscribes to Cable, DirecTV, Dish Network, or none of the above. For the 5,386 respondents (2.5%) who indicate that they subscribe to both cable and one of the satellite providers, we assume they only subscribe to the satellite provider.

Matching to lineup and availability data

We match both data sets to the Nielsen FOCUS lineups by the respondent's zip code and year.

A4. Construction of 2008 zip-level vote

Precinct-level voting data for the 2008 presidential election come from the Harvard Election Data Archive (HEDA, Ansolabehere and Rodden, 2011). We matched each precinct to a ZIP code (the level at which our cable position data is defined) using a spatial matching procedure. For each precinct in the HEDA

[41] For the top-coded categories, we compute the expected value conditional on being above the top-coding threshold.

[42] For the highest bin, we used 25 hours for Mediamark and 12.84 hours for Simmons.

shapefile, we computed the coordinates of the precinct's centroid. We then overlaid the precinct centroids onto the polygon files defining zip code tabulation area boundaries provided by the US Census Bureau's TIGER/Line series, generating a corresponding ZIP code for each precinct.

There are a minority of cases for which the precinct centroid does not fall within the boundaries of any ZIP code. This can happen, for instance, if the precinct centroid falls in a lake or other body of water, which are excluded from the ZIP polygon boundaries. In these cases, we match to ZIPs by computing the centroids for each ZIP, and finding the nearest neighbor ZIP centroid (by geographic distance) for each precinct centroid.

Once a ZIP code match for every precinct has been constructed in this fashion, we aggregate voting totals across precincts up to the ZIP level. This ZIP level dataset is then used in our reduced-form regression of 2008 Republican presidential vote share on position.

A5. Construction of CCES and NAES datasets

For the 2000, 2004 and 2008 election cycles, we use individual-level political preference data from the National Annenberg Election Survey (NAES). The NAES is a nationally representative telephone survey, conducted as a rolling cross-section between the December of the preceding year and the January following the election year. Survey waves were timed roughly to correspond with major campaign events such as the televised debates. Those interviewed after the election date were asked for whom they actually had cast a ballot; those interviewed before were asked for whom they intended to cast a ballot. The bulk of the interviews occur in the three months prior to the election; 10-15% occur after the election.

Sample selection

We included in our sample any respondent in the rolling cross-section who indicated a preference for one of the two major-party presidential candidates, either in the form of intention to vote or of actual vote, pooling together all survey waves. NAES also asked pre-election voters to state how certain they were of their choice, on a scale ranging from "Definitely will vote for candidate" to "Good chance will change mind." We pool all of these responses together as votes for the stated candidate. Voters who did not answer the presidential preference question, or said they "Don't know" or are "Uncertain" of their choice are excluded from the sample.

Demographics

We make some simplifications to the demographic questions in NAES, as follows. First, racial categories are simplified to three dummy variables, for white,

black, and hispanic respectively. The excluded category is all other racial categories. Education variables are reduced to a single dummy variable for having completed at least a bachelor's degree, which includes the NAES' "Four-year college degree" and "Graduate or professional degree" categories.

Household income comes in binned indicator form in the raw NAES data. For example, there is an indicator for household income of "$15,000 to less than $25,000." We convert these indicators to a continuous variable by computing the expected value of a lognormally-distributed random variable, conditional on the variable falling within the bin boundaries.[43] The parameters of this distribution are calibrated to match the shares of the national population falling into each of the income bins collected by the US Census Bureau. All respondents in the same income bin are, therefore, assigned the same level of income.

Most-watched cable channel

The 2004 and 2008 editions of the NAES ask respondents to state the TV news source which they watch most. In 2004 this question is phrased in terms of channels (i.e. respondents can select CNN, MSNBC, FNC, or one of the networks) whereas in 2008 it is phrased in terms of programs (i.e, respondents can select *The O'Reilly Factor*, *Anderson Cooper 360*, and so forth.) We convert the 2008 response to channel level by aggregating across all responses that indicate a show affiliated with a particular channel, as well as responses that state the channel name but not a specific program. We then create three mutually exclusive dummy variables for selecting each of the three channels. It is possible (and, in fact, likely) that a respondent may have a 0 for all three of these variables, indicating either that the respondent does not consume any TV news or that she prefers a non-cable source.

Matching to lineup and availability data

NAES data is matched to the Nielsen FOCUS lineups by the respondent's zip code and year. Because Nielsen's lineups data are released at the end of December each year, we apply the following rule for temporal matching: any respondent interviewed in the first six months of a year is matched to his zip code's lineup from the previous December 31. Any respondent interviewed in the last six months is matched to his zip code's lineup from the following December 31.

CCES

For 2008, we supplement the NAES data with additional respondents from the Cooperative Congressional Election Study (CCES), an online cross-section survey

[43] For the top-coded categories, we compute the expected value conditional on being above the top-coding threshold.

which began operation in 2006. Our construction of the CCES data exactly parallels the discussion of NAES data above. The only differences are that the CCES does not include the most-watched news source question, and that the income bins differ from those used by NAES. The conversion of income to a continuous variable discussed above allows the CCES data to be appended cleanly to the NAES sample.

Summary Statistics for Voting and Viewership Datasets

Tables A1 through A4 present summary statistics for the primary datasets employed in the 2SLS analysis and behavioral model: voting and viewership data, at the zip code and individual levels.

Table A1—Summary Statistics for 2008 Zip Code Level Voting

Statistic	N	Mean	St.Dev.	Min	Max
Year	22984.00	2008.00	0.00	2008.00	2008.00
Republican Two Party Vote Share	22984.00	52.24	17.49	0.35	94.05
Has FNC	22584.00	0.94	0.24	0.00	1.00
Has MSNBC	22584.00	0.85	0.36	0.00	1.00
FNC Position	22584.00	39.08	16.93	0.00	140.00
CNN Position	22584.00	30.28	13.69	0.00	123.00
MSNBC Position	22584.00	38.99	24.57	0.00	164.00
Number Channels	22584.00	161.58	51.48	8.00	249.00
Number Broadcast Channels	22584.00	13.55	8.40	2.00	45.00
Nielsen Diary Market	22984.00	0.48	0.50	0.00	1.00
FNC Minutes	17742.00	49.39	97.04	0.00	4233.60
CNN Minutes	17374.00	31.60	62.55	0.00	2046.24
MSNBC Minutes	17374.00	16.30	46.13	0.00	1673.28
FNC Minutes (Cable)	15616.00	58.94	137.80	0.00	4233.60
CNN Minutes (Cable)	15277.00	41.86	103.93	0.00	3487.68
MSNBC Minutes (Cable)	15277.00	22.20	72.49	0.00	3276.00
FNC Minutes (Satellite)	14947.00	56.03	143.19	0.00	4163.04
CNN Minutes (Satellite)	14598.00	34.22	96.40	0.00	4082.40
MSNBC Minutes (Satellite)	14598.00	14.00	59.80	0.00	1703.52
Population	22984.00	12828.07	14841.96	0.00	113916.00
Pct Black	22979.00	0.09	0.16	0.00	0.98
Pct Asian	22979.00	0.02	0.05	0.00	0.72
Pct Other	22979.00	0.07	0.09	0.00	1.00
Pct Hispanic	22979.00	0.09	0.15	0.00	1.00
Pct Male	22979.00	0.50	0.03	0.10	1.00
Pct Age 10-20	22979.00	0.15	0.04	0.00	0.88
Pct Age 20-30	22979.00	0.12	0.06	0.00	0.89
Pct Age 30-40	22979.00	0.12	0.03	0.00	0.42
Pct Age 40-50	22979.00	0.14	0.02	0.00	0.33
Pct Age 50-60	22979.00	0.15	0.03	0.00	0.50
Pct Age 60-70	22979.00	0.11	0.03	0.00	0.50
Pct Age 70-80	22979.00	0.06	0.03	0.00	0.34
Pct Age 80+	22979.00	0.04	0.02	0.00	0.61
Median HH Income	22909.00	53204.33	22090.18	2499.00	250001.00
Pct HS Graduate	22964.00	0.34	0.11	0.00	1.00
Pct Some College	22964.00	0.29	0.07	0.00	1.00
Pct Bachelors Degree	22964.00	0.15	0.09	0.00	1.00
Pct Post Graduate Degree	22964.00	0.08	0.08	0.00	1.00
Pct Own Home	22953.00	0.73	0.16	0.00	1.00
Median Home Value	22815.00	187870.02	155380.38	9999.00	1000001.00
Aggregate Tax Rate	22590.00	0.01	0.01	0.00	0.04
Median Number of Rooms	22911.00	5.70	0.80	1.30	9.00
Pct Homes Built After 2005	22937.00	0.03	0.05	0.00	1.00
Pct Food Stamps	22931.00	0.11	0.08	0.00	1.00
Median Social Security Income	22843.00	16085.78	2479.94	275.00	46761.00
Pct Veteran	22931.00	0.69	0.11	0.00	1.00
Pct Married	22971.00	0.55	0.11	0.00	1.00
Pct Same Sex HH	22953.00	0.00	0.00	0.00	0.12
Pct Unmarried HH	22953.00	0.06	0.02	0.00	0.50
Pct Family HH	22966.00	0.11	0.05	0.00	1.00
Fraction of 1996 Contributions to Republican	17944.00	0.70	0.30	0.00	1.00
Pct Evangelical (County)	22979.00	169.76	146.91	0.00	1113.76
Pct Catholic (County)	22979.00	189.47	154.32	0.00	946.82
Pct Jewish (County)	22979.00	11.81	26.76	0.00	313.86
Pct Mormon (County)	22979.00	13.66	65.55	0.00	915.70
Pct Southern Baptist Convention (County)	22979.00	84.30	126.84	0.00	961.39
Pct Suburban	22955.00	0.10	0.24	0.00	1.00
Pct Urban	22955.00	0.38	0.46	0.00	1.00
1996 County Republican Vote Share	22924.00	0.47	0.11	0.11	0.88

Note: An observation is a zip code-year. Demographic data comes from the US Census Bureau. Religious adherence data is from 2010 U.S. Religion Census: Religious Congregations and Membership Study (RCMS).

Table A2—Summary Statistics for NAES/CCES Voting Survey

Statistic	N	Mean	St. Dev.	Min	Max
Year	135574	2003.79	3.20	2000	2008
Has FNC	135574	0.88	0.32	0	1
Has MSNBC	135574	0.87	0.34	0	1
FNC Position	135574	37.84	18.99	0	125
CNN Position	135574	29.75	12.95	0	123
MSNBC Position	135574	39.54	21.61	0	164
Number Channels	135574	141.02	51.55	1	249
Number Broadcast Channels	135574	14.03	7.48	2	45
Intent to vote Republican	135574	0.50	0.50	0	1
Age	134608	48.21	16.42	18	99
White	135574	0.84	0.37	0	1
Black	135574	0.08	0.27	0	1
Hispanic	135574	0.07	0.25	0	1
Bachelors	135574	0.36	0.48	0	1
HH Income	123679	0.66	0.52	0.07	2.17
Male	135574	0.45	0.50	0	1
Most Watched FNC	48695	0.30	0.46	0	1
Most Watched CNN	48695	0.38	0.49	0	1
Most Watched MSNBC	48695	0.10	0.30	0	1
Population	135386	28864.83	18292.89	1	113916
Pct Black	135386	0.11	0.17	0.00	1.00
Pct Asian	135386	0.04	0.06	0.00	0.72
Pct Other	135386	0.09	0.09	0.00	0.98
Pct Hispanic	135386	0.13	0.17	0.00	0.99
Pct Male	135386	0.49	0.02	0.28	1.00
Pct Age 10-20	135386	0.14	0.03	0.00	0.95
Pct Age 20-30	135386	0.14	0.06	0.00	0.93
Pct Age 30-40	135386	0.13	0.03	0.00	0.35
Pct Age 40-50	135386	0.14	0.02	0.00	0.30
Pct Age 50-60	135386	0.14	0.02	0.00	0.29
Pct Age 60-70	135386	0.10	0.03	0.00	1.00
Pct Age 70-80	135386	0.06	0.02	0.00	0.34
Pct Age 80+	135386	0.04	0.02	0.00	0.33
Median HH Income	135359	56307.44	21572.15	2499	240441
Pct HS Graduate	135382	0.29	0.10	0.00	1.00
Pct Some College	135382	0.29	0.06	0.00	1.00
Pct Bachelors Degree	135382	0.18	0.09	0.00	1.00
Pct Post Graduate Degree	135382	0.11	0.08	0.00	1.00
Pct Own Home	135377	0.67	0.16	0.00	1.00
Median Home Value	135273	230027.60	166599.70	9999	1000001
Aggregate Tax Rate	135159	0.01	0.01	0.0001	0.04
Median Number of Rooms	135357	5.60	0.82	1.40	9.00
Pct Homes Built After 2005	135363	0.01	0.01	0.001	0.88
Pct Food Stamps	135363	0.11	0.07	0.00	0.72
Median Social Security Income	135324	16279.69	2071.40	610	31735
Pct Veteran	135363	0.66	0.11	0.00	1.00
Pct Married	135383	0.52	0.10	0.00	1.00
Pct Same Sex HH	135377	0.005	0.004	0.00	0.12
Pct Unmarried HH	135377	0.07	0.02	0.00	0.20
Pct Family HH	135383	0.10	0.04	0.00	1.00
Fraction of 1996 Contributions to Republican	128791	0.69	0.23	0.00	1.00
Pct Evangelical (County)	135341	147.62	127.82	0.00	1113.76
Pct Catholic (County)	135341	207.80	148.39	0.00	946.82
Pct Jewish (County)	135341	18.76	32.10	0.00	313.86
Pct Mormon (County)	135341	15.56	66.89	0.00	915.70
Pct Southern Baptist Convention (County)	135341	72.79	108.71	0.00	961.39
Pct Suburban	135377	0.11	0.25	0.00	1.00
Pct Urban	135377	0.68	0.43	0.00	1.00
1996 County Republican Vote Share	135001	0.46	0.11	0.11	0.88

Note: An observation is an individual. Zip Code demographic data comes from the US Census Bureau. Religious adherence data is from 2010 U.S. Religion Census: Religious Congregations and Membership Study (RCMS).

TABLE A3—SUMMARY STATISTICS FOR NIELSEN VIEWERSHIP SAMPLE

Statistic	N	Mean	St. Dev.	Min	Max
Year	71177	2006.50	1.12	2005	2008
Has FNC	71177	0.94	0.23	0	1
Has MSNBC	71177	0.86	0.35	0	1
FNC Position	71177	39.89	16.69	0	140
CNN Position	71177	29.94	13.23	0	123
MSNBC Position	71177	38.84	21.65	0	164
Number Channels	71177	157.03	46.62	7	249
Number Broadcast Channels	71177	12.50	7.76	2	45
Nielsen Sample Size	71177	57.05	73.58	0.50	1028.00
Nielsen Cable Sample Size	71071	34.69	53.75	0.00	948.00
Nielsen Satellite Sample Size	71072	15.30	19.11	0.00	371.00
Nielsen Diary Market	71177	0.51	0.50	0	1
FNC Minutes	71150	43.27	84.14	0.00	4233.60
CNN Minutes	69731	24.23	50.92	0.00	2388.96
MSNBC Minutes	69731	10.06	34.51	0.00	2076.48
FNC Minutes (Cable)	64894	51.03	124.35	0.00	7388.64
CNN Minutes (Cable)	63602	32.48	85.81	0.00	4122.72
MSNBC Minutes (Cable)	63602	13.01	48.14	0.00	3276.00
FNC Minutes (Satellite)	62178	48.81	133.41	0.00	7953.12
CNN Minutes (Satellite)	60840	24.13	72.40	0.00	4082.40
MSNBC Minutes (Satellite)	60840	8.66	43.94	0.00	3185.28
Population	71137	15485.43	15591.85	6	113916
Pct Black	71137	0.10	0.17	0.00	0.98
Pct Asian	71137	0.03	0.06	0.00	0.72
Pct Other	71137	0.07	0.09	0.00	0.98
Pct Hispanic	71137	0.10	0.16	0.00	0.99
Pct Male	71137	0.50	0.03	0.34	0.84
Pct Age 10-20	71137	0.15	0.03	0.00	0.60
Pct Age 20-30	71137	0.12	0.05	0.00	0.66
Pct Age 30-40	71137	0.12	0.03	0.004	0.30
Pct Age 40-50	71137	0.14	0.02	0.00	0.29
Pct Age 50-60	71137	0.15	0.03	0.001	0.32
Pct Age 60-70	71137	0.11	0.03	0.00	0.50
Pct Age 70-80	71137	0.06	0.02	0.00	0.34
Pct Age 80+	71137	0.04	0.02	0.00	0.31
Median HH Income	71129	52689.98	20622.01	2499	228726
Pct HS Graduate	71136	0.33	0.10	0.00	1.00
Pct Some College	71136	0.29	0.07	0.00	1.00
Pct Bachelors Degree	71136	0.15	0.09	0.00	0.61
Pct Post Graduate Degree	71136	0.09	0.07	0.00	0.92
Pct Own Home	71136	0.72	0.15	0.003	1.00
Median Home Value	71002	187049.60	145519.30	9999	1000001
Aggregate Tax Rate	70780	0.01	0.01	0.0001	0.04
Median Number of Rooms	71132	5.66	0.77	1.50	9.00
Pct Homes Built After 2005	71135	0.02	0.02	0.001	0.62
Pct Food Stamps	71135	0.11	0.08	0.00	0.78
Median Social Security Income	71057	16050.84	2249.87	610	30336
Pct Veteran	71135	0.68	0.10	0.00	1.00
Pct Married	71136	0.55	0.10	0.00	1.00
Pct Same Sex HH	71136	0.004	0.003	0.00	0.11
Pct Unmarried HH	71136	0.06	0.02	0.00	0.20
Pct Family HH	71136	0.11	0.04	0.00	0.55
Fraction of 1996 Contributions to Republican	59864	0.71	0.28	0.00	1.00
Pct Evangelical (County)	71167	170.35	144.60	0.00	978.98
Pct Catholic (County)	71167	185.96	150.07	0.00	946.82
Pct Jewish (County)	71167	11.50	24.97	0.00	313.86
Pct Mormon (County)	71167	13.40	60.77	0.00	915.70
Pct Southern Baptist Convention (County)	71167	85.79	126.23	0.00	852.45
Pct Suburban	71136	0.12	0.25	0.00	1.00
Pct Urban	71136	0.43	0.47	0.00	1.00
1996 County Republican Vote Share	71019	0.47	0.11	0.11	0.85

Note: An observation is a zip code-year. Demographic data comes from the US Census Bureau. Religious adherence data is from 2010 U.S. Religion Census: Religious Congregations and Membership Study (RCMS).

Table A4—Summary Statistics for Mediamark/Simmons Viewership Survey

Statistic	N	Mean	St. Dev.	Min	Max
Year	207950	2003.72	2.47	2000	2008
Has FNC	207950	0.94	0.24	0	1
Has MSNBC	207950	0.93	0.25	0	1
FNC Position	207950	40.79	17.29	0	140
CNN Position	207950	31.34	13.32	0	109
MSNBC Position	207950	42.48	18.56	0	164
Number Channels	207950	153.14	42.38	14	249
Number Broadcast Channels	207950	16.61	7.32	2	45
Age	207950	46.31	15.75	21	70
White	207950	0.81	0.39	0	1
Black	207950	0.10	0.31	0	1
Hispanic	207950	0.11	0.31	0	1
Bachelors	207950	0.32	0.47	0	1
HH Income	207860	0.74	0.63	0.04	6.33
Male	207950	0.51	0.50	0	1
FNC Minutes	207950	61.52	162.22	0.00	1500.00
CNN Minutes	207950	71.21	163.34	0.00	1500.00
MSNBC Minutes	207950	30.59	97.87	0.00	1500.00
Cable Subscriber	207950	0.65	0.48	0	1
Satellite Subscriber	207950	0.18	0.38	0	1
Population	207630	31101.55	18279.02	0	113916
Pct Black	207628	0.12	0.18	0.00	1.00
Pct Asian	207628	0.06	0.08	0.00	0.72
Pct Other	207628	0.09	0.09	0.00	1.00
Pct Hispanic	207628	0.15	0.18	0.00	0.98
Pct Male	207628	0.49	0.02	0.37	1.00
Pct Age 10-20	207628	0.15	0.03	0.00	0.47
Pct Age 20-30	207628	0.13	0.05	0.00	0.66
Pct Age 30-40	207628	0.13	0.03	0.00	0.35
Pct Age 40-50	207628	0.15	0.02	0.00	0.24
Pct Age 50-60	207628	0.14	0.02	0.00	0.26
Pct Age 60-70	207628	0.10	0.03	0.001	1.00
Pct Age 70-80	207628	0.05	0.02	0.00	0.34
Pct Age 80+	207628	0.04	0.02	0.00	0.35
Median HH Income	207614	65344.72	25327.25	9100	228726
Pct HS Graduate	207614	0.26	0.10	0.00	0.90
Pct Some College	207614	0.28	0.06	0.00	0.60
Pct Bachelors Degree	207614	0.21	0.09	0.00	0.54
Pct Post Graduate Degree	207614	0.13	0.09	0.00	0.63
Pct Own Home	207627	0.69	0.17	0.00	0.99
Median Home Value	207562	288273.00	193230.30	9999	1000001
Aggregate Tax Rate	207426	0.01	0.01	0.0002	0.03
Median Number of Rooms	207612	5.75	0.97	1.50	9.00
Pct Homes Built After 2005	207620	0.01	0.01	0.001	0.75
Pct Food Stamps	207614	0.09	0.07	0.00	0.78
Median Social Security Income	207552	16695.29	2219.52	7122	37418
Pct Veteran	207614	0.68	0.11	0.00	1.00
Pct Married	207614	0.53	0.10	0.00	0.88
Pct Same Sex HH	207627	0.01	0.004	0.00	0.11
Pct Unmarried HH	207627	0.06	0.02	0.00	0.20
Pct Family HH	207614	0.09	0.04	0.00	0.33
Fraction of 1996 Contributions to Republican	198700	0.68	0.23	0.00	1.00
Pct Evangelical (County)	207745	118.08	108.77	0.00	809.59
Pct Catholic (County)	207745	249.19	146.38	0.00	946.82
Pct Jewish (County)	207745	28.12	37.96	0.00	313.86
Pct Mormon (County)	207745	13.06	57.96	0.00	915.70
Pct Southern Baptist Convention (County)	207745	54.61	90.84	0.00	736.46
Pct Suburban	207627	0.05	0.18	0.00	1.00
Pct Urban	207627	0.82	0.34	0.00	1.00
1996 County Republican Vote Share	207053	0.45	0.12	0.11	0.82

Note: An observation is an individual. Zip Code demographic data comes from the US Census Bureau. Religious adherence data is from 2010 U.S. Religion Census: Religious Congregations and Membership Study (RCMS).

Channel Ideology Estimates

C1. Construction of Estimates

Our estimates of each channel's political ideology are generated by an adaptation of the method employed in Gentzkow and Shapiro (2010) to measure ideology of print newspapers. The method compares the use frequency of phrases in transcripts of the cable channel's shows to the use frequency of the same phrases in floor speeches by members of Congress recorded in the Congressional Record.

Text sources and transcript selection

We downloaded all transcripts from any show appearing on CNN, Fox News, and MSNBC during 2000-2013 that were available in the Lexis-Nexis database. Most of the highest-rated prime-time shows on all of the channels were available in Lexis, with one exception: Glenn Beck's Fox News show, which aired from 2009-2011.[44] We supplemented the Lexis transcripts by downloading transcripts of Glenn Beck's Fox News show from historical versions of the Fox News website archived by the Internet Archive (archive.org). Table A1 lists the shows for which we were able to collect transcripts, by channel. For each show, we downloaded all available transcripts of episodes of that show.

We also downloaded the 1998-2012 Congressional Record (CR) in its entirety from the US Government Publishing Office's website (`http://gpo.gov`). From the raw HTML files we extracted every speech that could be attributed to an individual member of Congress.

Pre-processing of text

Both transcript and Congressional record text was pre-processed by removing a list of 184 common "stop words" such as "we," "have," "for," and the like. The list of stop words matches that used by Gentzkow and Shapiro (2010). We then applied the Porter stemming algorithm to reduce variants of words to their common roots.[45] For example, the words "beaches" and "beach" would both be stemmed to "beach." Finally, a script counted the frequency of occurrence of every two word phrase that appears at least five times in total in the Congressional record in that year in the speech of every speaker.[46] A two-word phrase is two stemmed words appearing next to each other (excluding stop words) in the same sentence.

[44] The version of Mr. Beck's show on CNN, which aired from 2006-2008, had transcripts available in the database.

[45] We used an implementation of the Porter stemmer written in the Haskell language by Dmitry Antonyuk and Mark Wotton: `https://hackage.haskell.org/package/porter`

[46] A "speaker" in the TV transcripts is a show; in the Congressional record it is a member of Congress, either a senator or representative.

Table A1—Cable Shows for which Transcripts were Available, by Channel.

CNN	*Anderson Cooper 360*, *Campbell Brown*, *CNN Live Today*, *CNN News Room*, *CNN Tonight*, *Connie Chung Tonight*, *Crossfire*, *Erin Burnett OutFront*, *Glenn Beck*, *Greenfield at Large*, *John King, USA*, *Larry King Live*, *Moneyline / Lou Dobbs Tonight*, *News Night with Aaron Brown*, *Parker / Spitzer*, *Paula Zahn Now*, *Piers Morgan*, *The Point with Greta van Susteren*, *The Situation Room with Wolf Blitzer*, *Wolf Blitzer Reports*
Fox News	*Fox News Edge*, *Fox News Sunday*, *Glenn Beck*, *Hannity*, *The O'Reilly Factor*, *On the Record with Greta van Susteren*, *Special Report with Bret Baier*, *Special Report with Brit Hume*, *The Edge with Paula Zahn*, *The Kelly File*, *Your World with Neil Cavuto*
MSNBC	*All in with Chris Hayes*, *Ashleigh Banfield on Location*, *Buchanan & Press*, *Countdown with Keith Olbermann*, *Donahue*, *Hardball with Chris Matthews*, *Live with Dan Abrams*, *Morning Joe*, *Politics Nation*, *Rave for the White House 1600 Pennsylvania Ave.*, *Rita Cosby Live and Direct*, *Scarborough Country*, *The Ed Show*, *Last Word with Lawrence O'Donnell*, *The News with Brian Williams*, *The Rachel Maddow Show*, *The Savage Nation*, *Tucker*

Choice of phrase set

There are millions of two-word phrases which result from the phrase-counting algorithm described above. Most of these are of no value for distinguishing the partisanship of a a speaker. As a result, it is necessary to reduce the set of phrases considered to a manageable size, and to limit the number of "noise" phrases. We construct, for each phrase appearing in the Congressional Record, the Gentzkow-Shapiro partisanship statistic. We use the top 1000 "most partisan" phrases in each year according to this criterion, subject to the condition that the phrase must appear at least 20 times in total in the cable news transcripts in that year. We impose this criterion to weed out the (many) purely procedural phrases that appear in the Congressional Record, many of which appear highly partisan because they are spoken primarily by committee chairs, the House Speaker, and other members of the Congressional leadership, who by definition are all members of the majority party in the chamber.[47] The result is a set of 1000 phrases for each year.

[47]Some examples of such phrases are "move (the) question," "cloture motion," "unanimous consent," and "absence (of a) quorum."

Elastic-net regression

For each speaker in both the CR and the transcripts, we compute the frequency of each phrase as the count of occurrences divided by the total number of two-word phrases (among all phrases, not just the set of 1000 selected in the previous set). We standardize all frequencies by subtracting the mean frequency (across all speakers) and dividing by the cross-speaker standard deviation of frequency of the phrase in that year. This scaling prevents phrases that are more common overall from being weighted more heavily in the elastic net objective.

The standardized phrase frequencies of the set of 1000 phrases in each year for Congressional speakers are then input to an elastic-net regression (Zou and Hastie, 2005) where the dependent variable is the common-space DW-nominate first dimension score (McCarty, Poole and Rosenthal, 1997) of the legislator. We restrict the sample for this regression to the set of legislators who use the phrases in the set of 1000 at least 100 times in total, which drops a few very infrequent speakers from the sample. We select the lasso parameter λ in each year by cross-validation, and set the parameter α to 0.01. Finally, the estimated coefficients from the fitted models are used to compute a predicted ideology for each show-year.

Aggregation to channel-year level

We aggregate the show-year-level predicted ideologies to the channel-year level by a simple weighted average: shows in prime time get weight of two, and non-prime-time shows get weight of one. This weighting scheme approximately reflects the cable news audience distribution across the two time slots. Finally, we apply a moving-average smoothing filter to transform the resulting channel-year ideology estimates. This filter has a window of three years; we assign weight of 1/2 to the current year's estimate, and 1/4 each to the previous and next year's estimate.

C2. Alternative Assumptions and Robustness

We perform four checks to assess whether the patterns in the estimated slant are robust to alternative assumptions. First, instead of estimating the elastic net year-by-year, we pool all the Congressional speech into one data set. Second, we replace the elastic net with alternative models (random forest, partial least squares, and LASSO). Third, we use a binary indicator of Republican or Democrat instead of DW-Nominate scores. Finally, we computed a measure that does not rely on phrase usage at all: the share of time (measured by word count) allocated to guests who are elected officials from either party.

Pooling Congressional Data

The change in slant when estimating ideologies year-by-year reflects variation in both speech in Congress and speech on the news channels. The advantage of

the year-by-year approach is that the issues on which partisan conflict focuses can change, sometimes dramatically, over time. For example, phrases related to the war in Iraq do not appear prior to 2003 but become common (and highly partisan) thereafter. A selection of Iraq-related phrases would be very informative about partisanship in 2004-2006 but totally uninformative in 2000-2002, and hence it is advantageous to allow the phrase set to change over time to track the contemporaneous issues over which partisan conflict is most intense.

The disadvantage of the year-by-year approach is that apparent changes in our measures of slant on the news channels could be driven by changes in speech in Congress, rather than on the news channels. To check that our reported increase in dispersion of slant on the news channels is not driven purely by changes in speech in Congress, we pool the Congressional Record data across all the years in our sample and estimate the slant model on this pooled data. In this pooled version, there is a single set of phrases which each get an estimated coefficient of partisanship that applies for the entire sample period.[48] This approach thus guarantees that variation in the news channels' estimated slant over time is driven by changes in speech on the news channels only, not by changes in speech in Congress. Figure A1 confirms that the pattern of divergence from the center of estimated ideologies of FNC and MSNBC over time holds when using the pooled Congressional speech data.

Alternative Models

The elastic net imposes a specific form on the penalty term in the regularized regression, and it is possible that our reported slant measures are sensitive to this choice. To test the sensitivity of our results to the choice of elastic net, we replaced the elastic net with three alternative procedures. We use a random forest model Breiman (2001) with one hundred trees and a maximum of 2500 nodes on each tree in Figure C.C2; the partial least squares measure from Gentzkow and Shapiro (2010) in Figure C.C2; and the LASSO with penalty parameter chosen by cross validation in Figure A4. The general pattern of diverging slant holds across all models.

Binary Indicator of Partisanship

The left-hand side of the regressions in the slant model is members of congress' first dimension DW-Nominate score. DW-Nominate is constructed from roll-call voting records, it is possible that variation in the set of issues that come up for roll call votes in Congress could drive our estimated ideology scores. If, for

[48] An implicit assumption here is that the relationship between DW-NOMINATE measured ideology and phrase usage is constant over the sample period. If this assumption were violated, the result would be to weaken the correlation between DW-NOMINATE-measured ideology and phrase usage (assuming the relationship between "true" ideology and phrase usage remained constant). This would tend to reduce the magnitude of the coefficient estimates, and hence reduce the measured ideological separation between the channels.

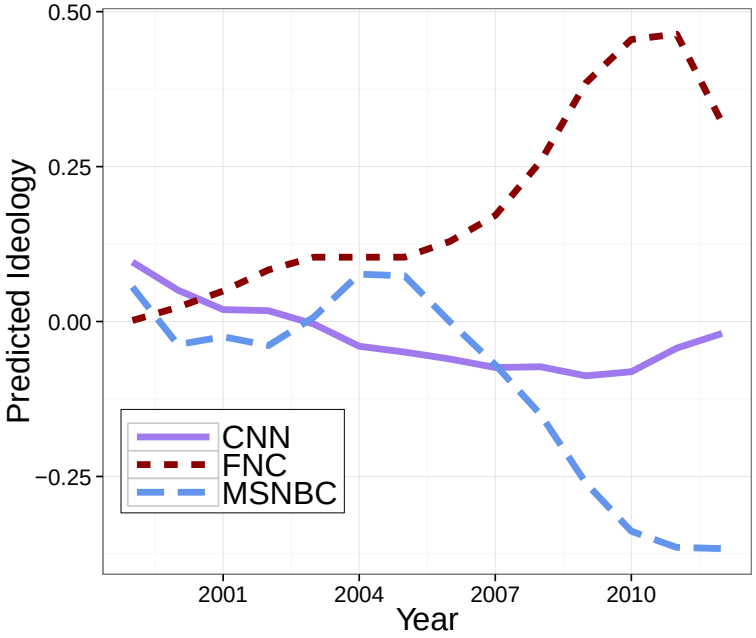


FIGURE A1. ESTIMATED IDEOLOGY BY CHANNEL-YEAR, POOLED

Note: Estimated Ideology by Channel-Year: Each point corresponds to the estimated ideology of the news channels based on phrase usage. This version is constructed using the pooled sample of Congressional speech for the entire 2000-2012 period.

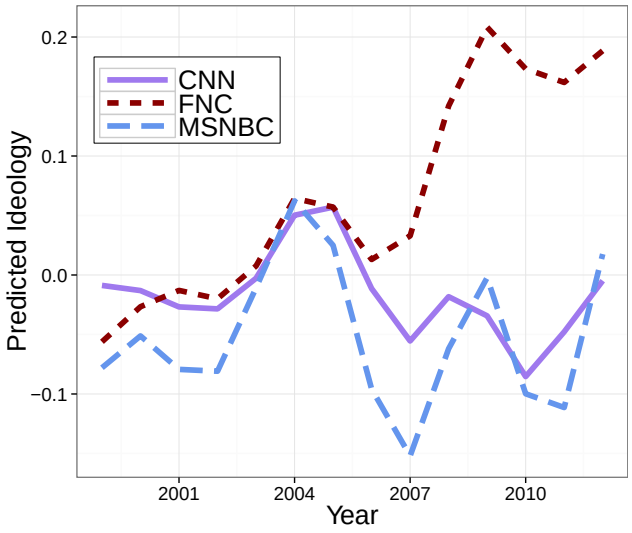


FIGURE A2. RANDOM FOREST ESTIMATED IDEOLOGY BY CHANNEL-YEAR

Note: Each point corresponds to the estimated ideology of the news channels based on phrase usage

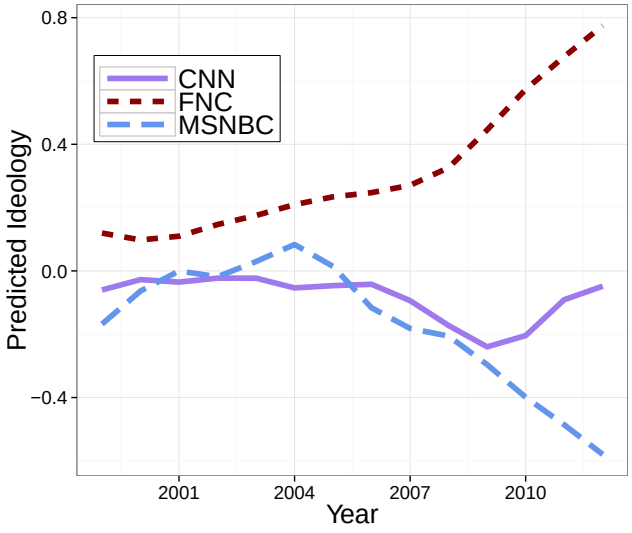


FIGURE A3. PARTIAL LEAST SQUARES ESTIMATED IDEOLOGY BY CHANNEL-YEAR

Note: Each point corresponds to the estimated ideology of the news channels based on phrase usage

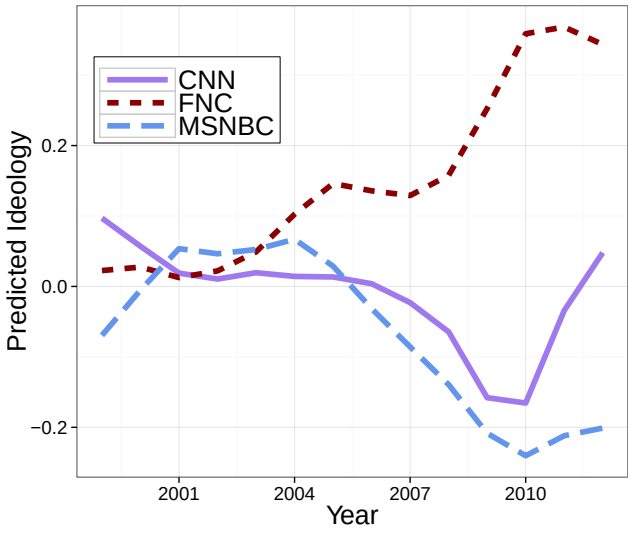


FIGURE A4. CROSS VALIDATED LASSO ESTIMATED IDEOLOGY BY CHANNEL-YEAR

Note: Each point corresponds to the estimated ideology of the news channels based on phrase usage

instance, majority parties increasingly exercised agenda control to keep bills that would split the majority caucus off the floor during the sample period, apparent polarization in Nominate scores - and hence in our measures of slant - could increase even if there were no change in speech patterns on cable news. To test this possibility, we re-estimated the model replacing the Nominate score with a binary indicator of partisanship (0 for Democrat and 1 for Republican). Although this version is noisier due to the information loss in moving from a continuous to a binary measure of ideology, the pattern of initially close estimated ideologies and increasing dispersion over time also holds here.

TIME ALLOCATED TO PARTISAN GUESTS

As a final check against the possibility that the ideology estimates are driven by variation in phrase usage unrelated to underlying ideology, we computed a measure of channel partisanship based not on the content of speech but simply the identity of the speaker. Cable news shows frequently invite current and former elected officials on as guests to comment on current events. We counted the total number of words spoken by guests on each channel who are current or former elected officials affiliated with each of the major parties, and plotted the share of words spoken by guests affiliated with the Republican party, as a fraction of total words spoken by guests of either party. The results, shown in Figure A6, show a pattern similar to the phrase-based estimates, with divergence between the channels widening after 2005.

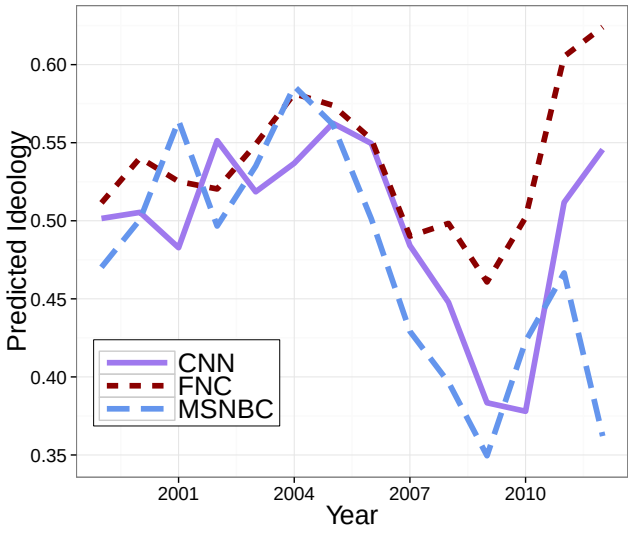


FIGURE A5. ESTIMATED IDEOLOGY BY CHANNEL-YEAR, BINARY

Note: Each point corresponds to the estimated ideology of the news channels based on phrase usage where ideology is measured on a scale of 0 (Democrat) to 1 (Republican).

UPDATE OF DELLAVIGNA AND KAPLAN (2007)

DellaVigna and Kaplan (2007) (henceforth DVK) compare changes in presidential vote shares in towns which had access to the Fox News Channel by the year 2000 compared to towns that did not conditional on a rich set of co-variates. In this section, we update the estimates from DVK using Nielsen data on availability of Fox News.

D1. Data Sources

The data source in DVK is the Warren's Cable and Television Factbook (henceforth Factbook). The Factbook updates only a minority of cable systems every year. The extent of non-updating has been documented by Crawford and Yurukoglu (2012). We reproduce the relevant years from their Appendix table below in Table A1. Updating is especially poor around DVK sample year. Between 1999 and 2000, only 22% of observations were updated. Between 1998 and 1999, only 37% of observations were updated. Since Fox News was expanding across the country rapidly during these years, this infrequent updating is consequential: many towns in the Factbook were listed as not having cable access to Fox News, when in fact they did but the Factbook simply wasn't updated yet. Nearly all systems in the Nielsen FOCUS data are updated every year.

To audit the Factbook data against the Nielsen FOCUS data, we consulted

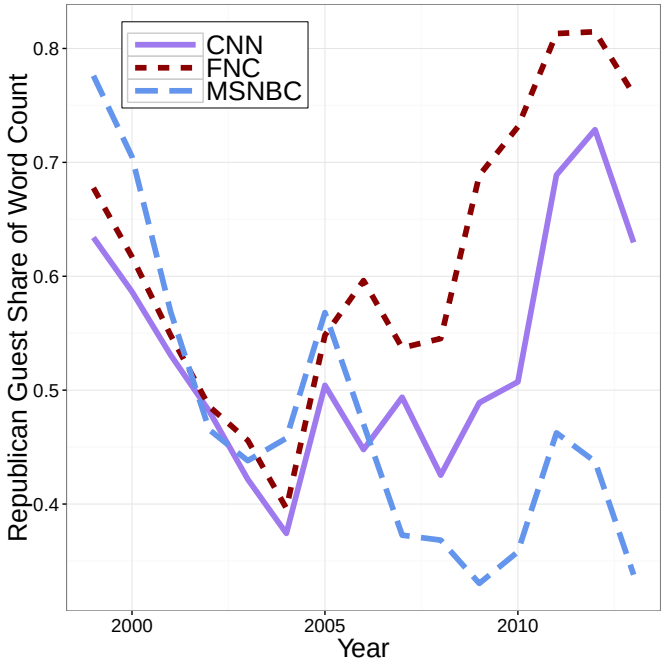


FIGURE A6. ESTIMATED IDEOLOGY BY CHANNEL-YEAR, GUEST SHARE

Note: Each point corresponds to the number of words spoken by guests who are elected Republican officials divided by the number of words spoken by guests who are elected officials from either major party, for a given channel-year.

Table A1—Data Quality of Factbook

Year	*Variable*	*Number of Bundles*	*Fraction of Bundles*
1998	Total bundles	15,743	100.0%
	Full information	10,872	69.0%
	Updated	4,714	30.0%
	Full information and updated	3,461	22.0%
1999	Total bundles	15,497	100.0%
	Full information	10,444	67.0%
	Updated	5,663	37.0%
	Full information and updated	3,595	23.0%
2000	Total bundles	15,453	100.0%
	Full information	10,312	67.0%
	Updated	3,358	22.0%
	Full information and updated	2,478	16.0%
2001	Total bundles	15,391	100.0%
	Full information	9,793	64.0%
	Updated	4,173	27.0%
	Full information and updated	2,663	17.0%
2002	Total bundles	15,287	100.0%
	Full information	7,776	51.0%
	Updated	5,086	33.0%
	Full information and updated	1,484	10.0%
1997-2007	Total bundles	166,619	100.0%
	Full information	91,100	55.0%
	Updated	62,299	37.0%
	Full information and updated	31,493	19.0%

Note: This table is a reproduction from Crawford and Yurukoglu (2012) indicating the degree of non-updating in Factbook data.

a third data source: cable conversion charts that appeared in weekly TV Week additions of local newspapers. These tables listed channel numbers for local cable systems. Figure A1 provides an example capture from the microfilms of such a chart. To conduct the audit, we sorted the set of communities where FOCUS and Factbook disagreed on Fox News availability in 2000 by population size. We tried to find cable conversion charts for the largest two hundred communities. We were able to readily find conversion charts which reference the community name in the system name and provide information on Fox News Channel for 45 communities.[49] For these 45 communities, the Nielsen FOCUS data was correct on 42 (93.33%) whereas the Factbook was correct on 3. Second, we investigated the systems with a particular large discrepancy: those where Nielsen FOCUS indicated had Fox News availability in 1998 while the Factbook indicated no availability by 2000. 353 of these systems were operated by Tele-Communcations Inc. (TCI) in 1998. Press reports from the time period indicate that Fox News would be available to over 90% of TCI customers by 1998 (Colman (1996)).

Finally, the number of subscribers for Fox News implied by the Factbook data

[49]The exact requirement is that the newspaper explicitly names the community in question. For example, we did not match Greenwich, CT to Cablevision Southern Connecticut as the newspaper did not explicitly mention that Greenwich was covered by this system. Furthermore, some conversion grids did not list all channels. For example, the Boston Globe only provided numbers for 31 basic cable channels, omitting Fox News, even though it had listings for 50 systems. The microfilm scans and spreadsheet with details on the audit are available on request from the authors.

conflict with the amount of viewership Fox News had in 2000, including the viewership data used in DVK. According to DVK, "About half of the Fox News audience, therefore, watches Fox News in ways other than via cable, possibly via satellite. This finding could also be due to measurement error in our measure of availability via cable." According to their data, 17% of households were watching Fox News in 2000. Therefore, 8.5% of all households must have been simultaneously satellite subscribers and watching Fox News. However, the market share of satellite in the year 2000 was 11.4%[50] Therefore, a vast majority of satellite subscribers must have been watching Fox News in 2000 to be consistent with the Factbook availability measures. Our Mediamark data indicate that the fraction of satellite subscribers watching Fox News in 2000 is only 19%.[51]

To correct this issue, we matched the voting and demographic data in DVK to Nielsen FOCUS. The identification numbers in the Factbook and Nielsen FOCUS do not match. We employed a matching procedure based on community names and firm names, using manual inspection when matches weren't obvious. We were able to reliably match 8,013 observations out of 9,256 to Nielsen FOCUS. Tables A2 and A3 compare the availability of Fox News according to the two data sources.

Table A2—FNC Availability

		Factbook Fox News (Year 2000)		
		0	1	Total
Nielsen Fox News	0	3,527	51	3,578
(Year 2000)	1	3,076	1,520	4,435
	Total	6,478	1,535	8,013

Note: Year 2000: Nielsen Fox News Availability and Factbook non-updated Fox News Availability.

About 40 percent of the control group in DVK is mis-classified as not having cable access to Fox News. About 25 percent already had access in 1998 and hadn't been updated for at least two years in the Factbook.

D2. Estimates with Nielsen Data

We now re-run the two benchmark specifications from DVK: the county level fixed effects regression and the US House district level fixed effects regression. These correspond to equation (2) in DVK. Table A4 compares the resulting estimates.

[50]The cable market share was 70.2% implying a 81.6% total market share. Thus, about 14% of cable or satellite subscribers were satellite subscribers.

[51]Their viewership data and our Mediamark data agree on the aggregate 17% number. Our Mediamark data indicate the conditional probability of watching Fox News conditional on satellite is only marginally higher at 19%.

Table A3—FNC Availability (1998 vs 2000)

		Factbook Fox News (Year 2000)		
		0	1	Total
Nielsen Fox News	0	4,687	355	5,042
(Year 1998)	1	1,791	1,180	2,971
	Total	6,478	1,535	8,013

Note: Nielsen Fox News Availability in 1998 and Factbook non-updated Fox News Availability in 2000.

The estimate in the Congressional district fixed effects regression remains stable and statistically significant with the Nielsen data. The estimate in the county level fixed effects regression drops from a statistically significant at 1% 0.00694 to a significant at 10% 0.00256. The difference cannot be attributed to not matching all of DVK's observations. The estimated effect is stronger when using the Factbook Fox variable, but only on the subset of matching observations . The change in results could possibly reflect that availability in the Factbook indicates a longer period of availability and the effects of exposure accumulate over time, however the Nielsen availability data only goes back to 1998 so we can not empirically test this explanation.

We now update the placebo result regarding Fox News availability in 2000. Table A5 compares the placebo regression estimates using the original data and the Nielsen data. Using the more correct data in the district fixed effect specification, the placebo regression's estimate for the effect of Fox News availability in 2000 on the change in vote shares from 1992 to 1996 is 0.0028, nearly the same as the estimate for the change in 1996 to 2000, compared to -0.00386 using the Factbook data. The coefficient's precision can not rule out a zero effect. The confidence interval for the Fox News availability in 2000 has shifted from (-0.0085, 0.0038) to (-0.0014, 0.0070).

For the district fixed effects specification, when examining the correlation of Fox News availability in 2000 with the level of Republican vote share in 1996, the point estimate changes from -0.0343 to 0.150, though in both cases the estimates are noisy with standard errors of 0.095 and 0.124, respectively. The coefficient in the county fixed effects specification becomes slightly more negative, which is reassuring, though again the estimate is noisy.

To summarize, using the more correct Nielsen FOCUS data, one estimates a consistent effect of 0.3 percentage points relative to an average of 0.5 percentage points with the Factbook data. The evidence on balance could be interpreted that in studying the effects of Fox News, researchers should utilize the more accurate Nielsen data, and pay special attention to the source of variation identifying the estimates and weigh the costs and benefits of using availability in 2000 or channel positions as sources of variation in viewership of Fox News. Both sources of

TABLE A4—DVK MAIN REGRESSION

	Republican two-party vote share change between 2000 and 1996 pres. elections					
	(1)	(2)	(3)	(4)	(5)	(6)
Factbook Fox	0.00421	0.00515		0.00694	0.00778	
	(0.00154)	(0.00166)		(0.00150)	(0.00166)	
Nielsen Fox			0.00360			0.00256
			(0.00121)			(0.00141)
Observations	9,256	8,013	8,013	9,256	8,013	8,013
R^2	0.753	0.760	0.760	0.812	0.823	0.822
Data Set	Factbook	Factbook	Nielsen	Factbook	Factbook	Nielsen
Sample	Full	Matched	Matched	Full	Matched	Matched
FE	District	District	District	County	County	County

Robust standard errors in parentheses, clustered by cable firm

Note: District FE and County FE specifications from DVK and with alternative Fox News availability data.

variation are attractive on different dimensions.

TABLE A5—DVK PLACEBO REGRESSION

	Republican two-party vote share change between 1996 and 1992 pres. elections					
	(1)	(2)	(3)	(4)	(5)	(6)
Factbook Fox	-0.00237	-0.00386		-0.00686	-0.0111	
	(0.00313)	(0.00335)		(0.00291)	(0.00286)	
Nielsen Fox			0.00280			0.00045
			(0.00212)			(0.00244)
Observations	4,006	3,527	3,527	4,006	3,527	3,527
R^2	0.620	0.625	0.626	0.732	0.725	0.732
Data Set	Factbook	Factbook	Nielsen	Factbook	Factbook	Nielsen
Sample	Full	Matched	Matched	Full	Matched	Matched
Specification	District FE	District FE	District FE	County FE	County FE	County FE

Robust standard errors in parentheses, clustered by cable firm

Note: District and County FE Placebo specifications from DVK and with alternative Fox News availability data.

TABLE A6—DVK AVAILABILITY REGRESSION

	Fox News Availability in 2000					
	Factbook	Factbook	Nielsen	Factbook	Factbook	Nielsen
Pres. republican vote share in 1996	-0.0343	-0.0182	0.150	-0.0442	-0.0584	-0.0922
	(0.0949)	(0.0995)	(0.124)	(0.110)	(0.117)	(0.117)
Observations	9,256	8,013	8,013	9,256	8,013	8,013
R^2	0.670	0.668	0.445	0.768	0.771	0.577
Sample	Full	Matched	Matched	Full	Matched	Matched
Specification	District FE	District FE	District FE	County FE	County FE	County FE

Robust standard errors in parentheses, clustered by cable firm

Note: District and County FE specifications from DVK and with alternative Fox News availability data regressed on 1996 vote share.

IV-2SLS Results with Individual Level Data

E1. First Stage

Table A1 presents the analogous results using the individual-level data from MediaMark. In this version, we are able to include demographic characteristics measured at the individual level in addition to the full set of extensive zip level demographic measures. Estimating equations here take the form:

$$h^c_{izt} = \delta_{ct} + a_{zct} + \alpha^1_c x_{zt} + \alpha^2_c x_{it} + \zeta_{c,FNC} p^{FNC}_{zt} + \zeta_{c,MSNBC} p^{MSNBC}_{zt} + \epsilon^H_{ict} \quad \text{(E1)}$$

Again, the FNC channel position correlates negatively with viewership, with very similar magnitude as in the independently sampled zip code level data. Unfortunately, because the individual level data span only about one-half as many clusters (cable systems) as the zip-code level data, the cluster-robust F statistics fall below ten in most cases, and the first stage coefficient on the instrument falls to zero when county-year fixed effects are included. The sample in Table A1 includes all respondents, including satellite subscribers and those who subscribe to neither wired cable nor satellite television. We use the pooled-sample first stage because the second stage data set lacks information on individuals' subscription choices. Section III presents a first stage estimated among cable subscribers alone; among cable subscribers, the individual-level position effect is precise and consistently negative.

In the individual level data, we can directly identify whether a respondent is a cable subscriber, a satellite subscriber, or neither.[52] We therefore run the first stage individual-level regression restricted to only cable and satellite subscribers, and interact channel positions with an indicator for whether the viewer subscribes to satellite.

E2. Second Stage

The individual-level regressions are directly analogous, with the exception that the outcome y_{izt} is now an indicator for whether individual i states their intention to vote for the Republican presidential candidate in the election of year t:

$$y_{izt} = \gamma_t + a_{it} + \beta^1 x_{it} + \beta^2 x_{zt} + \rho_f h^f_{it} + \epsilon^V_{it} \quad \text{(E2)}$$

Predicted hours in the individual-level regression is produced by the first-stage estimates in Table A1.

Comparing the two versions, the point estimate of the second-stage coefficient on FNC viewing is higher in the individual-level regression. It is also much less

[52] Satellite subscribers make up about 18% of MediaMark respondents, and roughly 16% of MediaMark respondents report subscribing to neither cable nor satellite television service.

TABLE A1—FIRST STAGE REGRESSIONS: MEDIAMARK / SIMMONS DATA

	FNC Minutes per Week					
	(1)	(2)	(3)	(4)	(5)	(6)
FNC Cable Position	−0.0833	−0.0977	−0.1008	−0.1068	0.0124	0.0302
	(0.0572)	(0.0542)	(0.0504)	(0.0447)	(0.0485)	(0.0464)
MSNBC Cable Position	0.0522	0.0480	0.0270	0.0628	−0.0323	−0.0115
	(0.0549)	(0.0552)	(0.0504)	(0.0441)	(0.0511)	(0.0472)
HH Income			43.5512	39.6030	40.4058	36.6810
			(2.9913)	(2.9649)	(3.0338)	(3.0511)
HH Income^2			−18.6924	−16.8152	−17.1702	−15.5555
			(1.6098)	(1.5933)	(1.6538)	(1.6464)
HH Income^3			1.9785	1.7680	1.8209	1.6416
			(0.1945)	(0.1915)	(0.2004)	(0.1974)
Age Quintile 2			10.9538	10.4238	10.6015	10.4606
			(0.9631)	(1.0032)	(0.9852)	(1.0104)
Age Quintile 3			21.8585	21.0334	21.2143	20.8256
			(1.0367)	(1.0775)	(1.0734)	(1.1106)
Age Quintile 4			31.5240	30.6014	30.9846	30.4839
			(1.1648)	(1.2012)	(1.2028)	(1.2334)
Age Quintile 5			64.2801	62.4959	62.8403	61.4261
			(1.4777)	(1.4761)	(1.5076)	(1.5137)
White			11.2290	9.8168	11.1014	10.7936
			(1.1463)	(1.2379)	(1.1839)	(1.2764)
Black			8.9943	10.7470	11.9928	13.1555
			(1.8396)	(1.7492)	(1.7361)	(1.7497)
Hispanic			−11.3233	−8.5084	−9.9711	−8.4407
			(1.4999)	(1.3540)	(1.3829)	(1.3748)
College Degree			−7.6653	−6.1894	−6.6920	−6.3910
			(0.9601)	(0.9833)	(0.9519)	(0.9897)
Man			10.5359	10.5422	10.6558	10.7509
			(0.8083)	(0.8265)	(0.8155)	(0.8317)
Fixed Effects:	Year	State-Year	State-Year	State-Year	County-Year	County-Year
Cable Controls:	Y	Y	Y	Y	Y	Y
Demographics:	None	None	Individual	Extensive	Individual	Extensive
Robust F-Stat	2.1	3.2	4	5.7	0.1	0.4
Number of Clusters	2589	2589	2589	2379	2589	2381
N	207,950	207,950	207,860	197,551	207,860	198,300
R^2	0.0099	0.0158	0.0395	0.0419	0.0737	0.0745

Note: Cluster-robust standard errors in parentheses (clustered by cable system). Instrument is the ordinal position of FNC on the local system. The omitted category for the availability dummies is systems where neither FNC nor MSNBC is available. Cable system controls include the total number of channels on the system and the number of broadcast channels on the system. "Individual" demographics are measured at the level of the individual respondent. "Extensive" demographics include all of the same individual-level measures plus all of the zip-code-level demographics included in the zip-code-level analysis.

TABLE A2—SECOND STAGE REGRESSIONS: NAES / CCES DATA

	P(Vote for Republican Presidential Candidate)		
	(1)	(2)	(3)
Pred. FNC Mins.	0.0018	0.0034	0.0023
	(−0.0142, 0.0244)	(−0.0049, 0.0234)	(−0.0012, 0.0122)
HH Income		0.3358	0.3251
		(−0.5604, 0.7036)	(−0.0755, 0.5129)
HH Income^2		−0.3090	−0.2769
		(−0.4943, 0.0952)	(−0.3887, −0.0993)
HH Income^3		0.0836	0.0740
		(0.0385, 0.1115)	(0.0505, 0.0988)
Age Quintile 2		−0.0073	−0.0008
		(−0.2267, 0.0919)	(−0.1027, 0.0414)
Age Quintile 3		−0.0426	−0.0282
		(−0.4798, 0.1463)	(−0.2317, 0.0514)
Age Quintile 4		−0.1027	−0.0764
		(−0.7632, 0.1597)	(−0.3689, 0.0372)
Age Quintile 5		−0.1893	−0.1233
		(−1.4844, 0.3452)	(−0.7469, 0.1068)
White		0.0539	0.0558
		(−0.1941, 0.1509)	(−0.0411, 0.0964)
Black		−0.3836	−0.3544
		(−0.5517, −0.3001)	(−0.4690, −0.3051)
Hispanic		−0.0434	−0.0561
		(−0.1375, 0.1871)	(−0.0910, 0.0339)
College Degree		−0.0584	−0.0478
		(−0.1235, 0.0978)	(−0.0736, 0.0147)
Man		0.0387	0.0505
		(−0.1610, 0.1299)	(−0.0533, 0.0878)
Fixed Effects:	State-Year	State-Year	State-Year
Cable Controls:	Y	Y	Y
Demographics:	None	Individual	Extensive
Number of Clusters	6659	6523	5540
N	134,970	122,738	116,009
R^2	0.0286	0.1116	0.1365

Note: The first stage is estimated on all MediaMark/Simmons respondents. See first stage tables for description of instruments and control variables. Confidence intervals are generated from 500 independent STID-block-bootstraps of the first and second stage datasets. Reported lower and upper bounds give the central 95 percent interval of the relevant bootstrapped statistic. "Individual" demographics are measured at the level of the individual respondent. "Extensive" demographics include all of the same individual-level measures plus all of the zip-code-level demographics included in the zip-code-level analysis.

precise, however; the individual-level confidence interval entirely covers the zip code-level confidence interval. This difference is reflective of both the greater power of the instrument in the zip code-level first stage and the much greater predictability of zip code-level Republican vote shares as opposed to individual vote intentions: R^2 values in the zip code-level reduced form regression approach 0.85, as compared to 0.15 in the corresponding individual-level regression.

There are two factors which temper the threat of misleading inference due to weak instruments in the second stage. First, we are using a single instrument in the just-identified case. Second, recalling the two-sample nature of the individual data, the intent-to-vote data span many more clusters than the viewership data.

E3. Reduced Form

With the individual level data, these correlations are only significant in the specifications with state-year fixed effects; due to the relatively small number of clusters in this sample there is insufficient within-county variation to estimate the position effects precisely.

E4. Demographic Placebos

TABLE A3—REDUCED FORM REGRESSIONS: NAES / CCES DATA

	P(Vote for Republican Presidential Candidate)					
	(1)	(2)	(3)	(4)	(5)	(6)
FNC Cable Position	−0.0003	−0.0002	−0.0003	−0.0002	−0.0004	−0.0002
	(0.0003)	(0.0002)	(0.0002)	(0.0001)	(0.0002)	(0.0002)
MSNBC Cable Position	0.001	0.0002	0.0001	0.0001	−0.0003	−0.0005
	(0.0003)	(0.0002)	(0.0002)	(0.0001)	(0.0002)	(0.0002)
HH Income			0.481	0.414	0.452	0.398
			(0.026)	(0.027)	(0.027)	(0.028)
HH Income^2			−0.370	−0.313	−0.341	−0.298
			(0.030)	(0.030)	(0.031)	(0.032)
HH Income^3			0.090	0.077	0.083	0.073
			(0.009)	(0.009)	(0.009)	(0.010)
Age Quintile 2			0.030	0.023	0.028	0.025
			(0.005)	(0.005)	(0.005)	(0.006)
Age Quintile 3			0.031	0.020	0.028	0.022
			(0.005)	(0.005)	(0.005)	(0.005)
Age Quintile 4			0.003	−0.007	0.001	−0.003
			(0.005)	(0.005)	(0.006)	(0.006)
Age Quintile 5			0.027	0.019	0.028	0.023
			(0.005)	(0.005)	(0.005)	(0.005)
White			0.092	0.079	0.083	0.079
			(0.006)	(0.006)	(0.006)	(0.006)
Black			−0.353	−0.329	−0.338	−0.322
			(0.009)	(0.010)	(0.010)	(0.010)
Hispanic			−0.082	−0.076	−0.075	−0.076
			(0.008)	(0.008)	(0.009)	(0.008)
College Degree			−0.084	−0.062	−0.070	−0.062
			(0.004)	(0.004)	(0.004)	(0.004)
Man			0.074	0.075	0.075	0.075
			(0.003)	(0.003)	(0.003)	(0.003)
Fixed Effects:	Year	State-Year	State-Year	State-Year	County-Year	County-Year
Cable Controls:	Y	Y	Y	Y	Y	Y
Demographics:	None	None	Individual	Extensive	Individual	Extensive
Number of Clusters	6739	6739	6605	5582	6605	5582
N	135,574	135,574	123,297	116,465	123,297	116,465
R^2	0.012	0.029	0.112	0.137	0.188	0.197

Note: Cluster-robust standard errors in parentheses (clustered by cable system). "Individual" demographics are measured at the level of the individual respondent. "Extensive" demographics include all of the same individual-level measures plus all of the zip-code-level demographics included in the zip-code-level analysis.

TABLE A4—COMPARISON OF COVARIATE GROUPS' INFLUENCE ON VIEWING EQUATION, VOTING EQUATION, AND THE FIRST STAGE COEFFICIENT ESTIMATE: MEDIAMARK / SIMMONS DATA

	R^2 Change (Viewing)	R^2 Change (Voting)	First Stage	Reduced Form
Zip Race	0.000038	0.000507	−0.110166	−0.000249
			(0.044847)	(0.000135)
Zip Age	0.000204	0.000584	−0.104163	−0.000251
			(0.044891)	(0.000133)
Zip Education	0.000284	0.001017	−0.106287	−0.000256
			(0.045566)	(0.000133)
Zip Marital Status	0.000227	0.001200	−0.101806	−0.000318
			(0.045826)	(0.000136)
Zip 1996 Voting / Contribs.	0.000032	0.003585	−0.104493	−0.000318
			(0.043564)	(0.000139)
County Religion	0.000068	0.000087	−0.113065	−0.000241
			(0.044444)	(0.000134)
(No Demographics)	0.026092	0.107699	−0.097660	−0.000181
			(0.054180)	(0.000248)
(Complete set)	0.000000	0.000000	−0.106764	−0.000248
			(0.044709)	(0.000133)
Number of Clusters	2379	5582	2379	5582
N	197,551	116,465	197,551	116,465

Note: Cluster-robust standard errors in parentheses (clustered by cable system). The first two columns are the decrease in R^2 resulting from excluding all variables in the listed group from the viewership and the voting regressions, respectively, relative to the version of the model with the complete set of demographic controls included. The third column shows the estimated first stage coefficient on FNC position when the corresponding group of demographic variables is excluded from the equation. The final column is the same exercise, for the reduced form equation. All regressions include the "Extensive" demographic set, with the exception of the indicated group of variables, plus state-year fixed effects.

Additional Regression Tables

F1. Reduced Form Results for 2004 and 2012

Here we present reduced form results for the 2004 and 2012 elections. For 2004, seventeen states had geo-coded data. Furthermore, we were able to match a subset of precincts for another 20 states to precincts in the same state and county in 2008, using approximate string matching of precinct names. As we had a zip code for each 2008 precinct from the spatial matching procedure described in Section A.A4, this process allowed us to aggregate to the zip code level. For 2012, the reliability of matching to 2008 precincts based on precinct name, county, and state declined substantially due to the intervening 2010 census and subsequent legislative redistricting. Instead, we extracted town names where possible from the precinct names, and matched these to town names in our cable system positioning dataset. We were able to match at least some precincts to cable systems by town name for 38 states; within these states, we were able to match 46.3% of precincts to a cable system in our dataset. We then aggregated demographics to the town level and ran the 2012 reduced form regression at the town level.

The results for 2004 and 2012 largely confirm the 2008 results with a one position increase in FNC corresponding to between -0.017 to -0.042 percentage points in 2004, -0.015 to -0.027 in 2008, and -0.028 to -0.034 in 2012.

Table A1—Reduced Form Regressions: Zip Code Voting Data, 2004 Election

	2004 Bush Vote Percentage					
	(1)	(2)	(3)	(4)	(5)	(6)
FNC Cable Position	−0.001	−0.010	−0.042	−0.031	−0.017	−0.025
	(0.032)	(0.028)	(0.015)	(0.011)	(0.011)	(0.011)
MSNBC Cable Position	0.038	0.002	0.032	0.017	0.011	0.012
	(0.036)	(0.035)	(0.018)	(0.014)	(0.014)	(0.014)
Has MSNBC Only	−0.735	0.262	−1.437	−1.817	−0.051	−2.336
	(2.214)	(2.082)	(1.128)	(1.196)	(1.040)	(1.237)
Has FNC Only	5.802	4.816	3.297	2.223	1.772	1.442
	(1.387)	(1.179)	(0.727)	(0.692)	(0.591)	(0.722)
Has Both	1.062	3.773	1.458	1.305	1.228	0.833
	(1.769)	(1.687)	(1.049)	(0.849)	(0.891)	(0.867)
Fixed Effects:	None	State	State	State	County	County
Cable System Controls:	Y	Y	Y	Y	Y	Y
Demographics:	None	None	Basic	Extended	Basic	Extended
Number of Clusters	4114	4114	4107	2955	4107	2955
N	13,463	13,463	13,405	10,112	13,405	10,112
R^2	0.132	0.255	0.650	0.774	0.812	0.854

Note: Cluster-robust standard errors in parentheses (clustered by cable system). See first stage tables for description of instruments and control variables.

Table A2—Reduced Form Regressions: Town Voting Data, 2012

	2012 Romney Vote Percentage					
	(1)	(2)	(3)	(4)	(5)	(6)
FNC Cable Position	−0.032	−0.022	−0.028	−0.031	−0.034	−0.033
	(0.027)	(0.021)	(0.016)	(0.014)	(0.011)	(0.014)
MSNBC Cable Position	0.012	0.011	0.006	0.008	−0.001	0.0003
	(0.015)	(0.013)	(0.010)	(0.007)	(0.007)	(0.008)
Has MSNBC Only	−10.604	−9.187	−4.643	−6.186	−4.989	−3.981
	(4.402)	(4.045)	(2.678)	(3.691)	(2.314)	(4.043)
Has FNC Only	5.525	3.012	2.717	1.312	1.263	1.113
	(2.013)	(1.730)	(1.376)	(1.651)	(0.939)	(1.365)
Has Both	5.825	2.445	1.373	0.616	−0.135	−0.635
	(2.461)	(1.909)	(1.470)	(1.657)	(0.980)	(1.316)
Fixed Effects:	None	State	State	State	County	County
Cable System Controls:	Y	Y	Y	Y	Y	Y
Demographics:	None	None	Basic	Extended	Basic	Extended
Number of Clusters	2645	2645	2638	2196	2638	2196
N	9,317	9,317	9,078	6,853	9,078	6,853
R^2	0.048	0.243	0.499	0.594	0.804	0.811

Note: An observation is a town; the dependent variable is the town's Republican share of the two-party presidential vote in 2012. Cluster-robust standard errors in parentheses (clustered by cable system). See first stage tables for description of instruments and control variables.

F2. OLS Results

Table A3 presents results of regressing Republican vote share in 2008 on Nielsen mean Fox News viewership at the zip code level. Though the coefficient on FNC minutes here is positive, it is about an order of magnitude smaller than the corresponding 2SLS estimate in Table 4.

Table A3—OLS Regressions: Zip Code Voting Data

	2008 McCain Vote Percentage					
	(1)	(2)	(3)	(4)	(5)	(6)
FNC Minutes	0.081	0.073	0.022	0.017	0.011	0.011
	(0.006)	(0.005)	(0.002)	(0.002)	(0.001)	(0.001)
MSNBC Cable Position	0.035	0.026	0.022	0.010	−0.009	−0.006
	(0.023)	(0.020)	(0.010)	(0.006)	(0.005)	(0.005)
Fixed Effects:	None	State	State	State	County	County
Cable System Controls:	Y	Y	Y	Y	Y	Y
Demographics:	None	None	Basic	Extended	Basic	Extended
Number of Clusters	4913	4913	4913	4162	4913	4162
N	16,948	16,948	16,946	14,281	16,946	14,281
R^2	0.155	0.288	0.766	0.856	0.914	0.929

Note: Cluster-robust standard errors in parentheses (clustered by cable system). See first stage tables for description of instruments and control variables.

F3. Drop Nielsen Zip Codes with Fewer than Ten Respondents

As an alternative to weighting the first stage regressions, we also consider dropping zip codes with fewer than ten respondents. These small-sample zip codes occasionally have outlier viewership numbers that are six or more standard deviations above the sample mean,[53] and have a large influence the regression results. Table A4 confirms that the first stage when dropping these zip codes is similar to the first stage with weighting by number of Nielsen respondents.

TABLE A4—FIRST STAGE REGRESSIONS: NIELSEN DATA, SATELLITE AND CABLE SUBSCRIBERS, EXCLUDING SMALL ZIPS

	FNC Minutes Per Week					
	(1)	(2)	(3)	(4)	(5)	(6)
FNC Position × cable	−0.249	−0.297	−0.337	−0.167	−0.162	−0.253
	(0.050)	(0.046)	(0.049)	(0.065)	(0.064)	(0.068)
FNC Position × sat	−0.023	−0.058	−0.062	0.029	0.040	0.116
	(0.053)	(0.046)	(0.049)	(0.086)	(0.085)	(0.102)
MSNBC Position × cable	0.127	0.120	0.133	0.072	0.055	0.134
	(0.043)	(0.047)	(0.042)	(0.063)	(0.060)	(0.064)
MSNBC Position × sat	0.024	0.018	0.018	−0.051	−0.066	−0.102
	(0.048)	(0.043)	(0.044)	(0.113)	(0.112)	(0.139)
Fixed Effects:	State-Year	State-Year	State-Year	County-Year	County-Year	County-Year
Cable Controls:	Y	Y	Y	Y	Y	Y
Demographics:	None	Basic	Extensive	None	Basic	Extensive
Chow Test p-value	0	0	0	0.063	0.054	0.002
Number of Clusters	5116	5116	4397	5116	5116	4397
N	103,037	103,031	89,874	103,037	103,031	89,874
R^2	0.020	0.042	0.047	0.280	0.292	0.321

Note: Cluster-robust standard errors in parentheses (clustered by cable system). Positions are the ordinal position of FNC/MSNBC on the local cable system. The omitted category for the availability dummies is systems where neither FNC nor MSNBC is available. Cable system controls include the total number of channels on the system and the number of broadcast channels on the system. All controls (including fixed effects) are interacted with a dummy for the observation corresponding to satellite viewership. Zip codes with less than 10 Nielsen households are excluded from the sample.

F4. MSNBC Analysis

This section contains analogous 2SLS results to those in section III, where MSNBC viewership is treated as the endogenous variable, either instead of or in addition to Fox News viewership. Tables A5 and A6 show the first stage regression of MSNBC hours watched on cable channel positions in the zip code level and individual level datasets, respectively.

Tables A7 and A8 show single-instrument second-stage results with MSNBC viewership instrumented by MSNBC position.

[53]Because the majority of viewers do not watch any cable news, a zipcode with a handful of Nielsen households can easily have observed ratings much higher than average if a somewhat higher than average number of those households happen to be cable news viewers.

TABLE A5—FIRST STAGE REGRESSIONS: NIELSEN DATA

	MSNBC Minutes Per Week					
	(1)	(2)	(3)	(4)	(5)	(6)
MSNBC Cable Position	−0.099	−0.088	−0.082	−0.082	−0.035	−0.036
	(0.014)	(0.022)	(0.014)	(0.013)	(0.018)	(0.015)
FNC Cable Position	0.037	0.049	0.039	0.036	0.011	0.012
	(0.013)	(0.015)	(0.011)	(0.009)	(0.012)	(0.011)
Has MSNBC Only	8.086	7.758	8.086	7.607	5.730	4.887
	(1.414)	(1.387)	(1.593)	(1.311)	(2.060)	(1.761)
Has FNC Only	−3.588	−3.231	−3.721	−3.369	−2.535	−2.287
	(0.625)	(0.648)	(0.630)	(0.541)	(0.747)	(0.661)
Has Both	6.157	5.621	4.873	5.070	2.522	2.958
	(0.837)	(0.919))	(0.805)	(0.715)	(1.017)	(0.901)
Sat. MSNBC Minutes				0.185		0.162
				(0.018)		(0.018)
Fixed Effects:	Year	State-Year	State-Year	State-Year	County-Year	County-Year
Cable Controls:	Y	Y	Y	Y	Y	
Demographics:	None	None	Extended	Extended	Extended	Extended
Robust F-Stat	49.4	15.8	34.6	38.2	3.9	5.4
Number of Clusters	5633	5633	4701	4632	4710	4641
N	69,731	69,731	58,394	50,970	58,537	51,082
R^2	0.095	0.126	0.178	0.323	0.370	0.488

Note: Cluster-robust standard errors in parentheses (clustered by cable system). Instrument is the ordinal position of MSNBC on the local system. The omitted category for the availability dummies is systems where neither FNC nor MSNBC is available. In Columns (4) and (6), the specification conditions on the average MSNBC ratings among satellite subscribers in the same zip code. Cable system controls include the total number of channels on the system and the number of broadcast channels on the system, as well as an indicator for Nielsen collection mode (diary vs. set-top). "Basic" demographics include the racial, gender, age, income, educational, and urban/rural makeup of the zip code. "Extended" demographics adds information on the percentage of homeowners; median housing values, sizes, ages, and property tax rates; the fraction of the population receiving food stamps; median social security income; the fraction of veterans; the fractions of married, unmarried, and same-sex couples; the share of federal campaign contributions that went to Republican candidates in 1996; the Republican presidential share of the county in 1996; and the religious composition of the county. Observations are weighted by the number of survey individuals in the zipcode according to Nielsen.

TABLE A6—FIRST STAGE REGRESSIONS: MEDIAMARK / SIMMONS DATA

	MSNBC Minutes					
	(1)	(2)	(3)	(4)	(5)	(6)
MSNBC Cable Position	−0.179	−0.158	−0.165	−0.161	−0.152	−0.151
	(0.030)	(0.033)	(0.032)	(0.029)	(0.033)	(0.033)
FNC Cable Position	0.085	0.074	0.076	0.077	0.075	0.080
	(0.032)	(0.030)	(0.029)	(0.028)	(0.031)	(0.033)
HH Income			23.923	22.761	23.348	22.253
			(1.717)	(1.773)	(1.696)	(1.732)
HH Income^2			−8.825	−8.555	−8.642	−8.351
			(0.953)	(0.975)	(0.943)	(0.954)
HH Income^3			0.886	0.867	0.861	0.836
			(0.119)	(0.123)	(0.119)	(0.121)
Age Quintile 2			5.583	5.889	5.796	6.130
			(0.699)	(0.714)	(0.714)	(0.735)
Age Quintile 3			8.420	8.888	8.620	8.949
			(0.743)	(0.763)	(0.772)	(0.800)
Age Quintile 4			12.385	12.896	12.854	13.246
			(0.777)	(0.808)	(0.813)	(0.841)
Age Quintile 5			22.768	23.013	22.793	22.871
			(0.854)	(0.891)	(0.892)	(0.928)
White			−0.546	−0.549	−0.483	−0.421
			(0.848)	(0.863)	(0.838)	(0.866)
Black			3.042	3.864	2.824	4.138
			(1.188)	(1.227)	(1.252)	(1.269)
Hispanic			−5.515	−3.549	−4.817	−3.529
			(0.843)	(0.791)	(0.775)	(0.816)
College Degree			3.838	3.012	3.611	2.963
			(0.528)	(0.565)	(0.543)	(0.573)
Man			5.356	5.372	5.461	5.515
			(0.486)	(0.491)	(0.481)	(0.491)
Fixed Effects:	Year	State-Year	State-Year	State-Year	County-Year	County-Year
Cable Controls:	Y	Y	Y	Y	Y	Y
Demographics:	None	None	Individual	Extensive	Individual	Extensive
Robust F-Stat	36.7	22.8	27.3	29.7	21.9	20.2
Number of Clusters	2589	2589	2589	2379	2589	2381
N	207,950	207,950	207,860	197,551	207,860	198,300
R^2	0.004	0.009	0.020	0.022	0.052	0.054

Note: Cluster-robust standard errors in parentheses (clustered by cable system). Instrument is the ordinal position of MSNBC on the local system. The omitted category for the availability dummies is systems where neither FNC nor MSNBC is available. Cable system controls include the total number of channels on the system and the number of broadcast channels on the system. "Individual" demographics are measured at the level of the individual respondent. "Extensive" demographics include all of the same individual-level measures plus all of the zip-code-level demographics included in the zip-code-level analysis.

Table A7—Second Stage Regressions: Zip Code Voting Data

	2008 McCain Vote Percentage			
	(1)	(2)	(3)	(4)
Pred. MSNBC Mins.	−0.099	−0.150	−0.082	−0.070
	(−0.259, 0.039)	(−0.306, −0.014)	(−0.853, 0.722)	(−1.207, 1.123)
Satellite MSNBC Mins.		0.022		0.009
		(−0.003, 0.054)		(−0.181, 0.191)
Fixed Effects:	State	State	County	County
Cable System Controls:	Y	Y	Y	Y
Demographics:	Extended	Extended	Extended	Extended
Number of Clusters	4814	3993	4729	4001
N	17,400	12,129	16,917	12,155
R^2	0.833	0.839	0.906	0.918

Note: The first stage is estimated using viewership data for all Nielsen TV households. See first stage tables for description of instruments and control variables. Observations in the first stage are weighted by the number of survey individuals in the zipcode according to Nielsen. Confidence intervals are generated from 1000 independent STID-block-bootstraps of the first and second stage datasets. Reported lower and upper bounds give the central 95 percent interval of the relevant bootstrapped statistic.

Tables A9 and A10 show dual-instrument second-stage results with both FNC and MSNBC viewership instrumented by FNC and MSNBC positions.

Table A11 presents the analog to Table 6 for MSNBC. Here, the MSNBC cable effect is also strongly negative. The effect on satellite subscribers is around one-tenth the size of the effect on cable subscribers. We also present in Table A12 the analog of Table 5 but probing MSNBC position instead of Fox News position. While most of the coefficients are re-assuring, MSNBC position is significantly positively correlated with the predictable-by-demographics Republican vote share. Taken alone, this would suggest some degree of endogenous positioning of MSNBC, but an alternative explanation tempers this interpretation. The Fox News position displays a coefficient of the same magnitude in Table 5. This suggests an alternative interpretation that both news channel positions tend to be lower overall in less Republican areas, which would bias the Fox News effect in the opposite direction of what we find.

F5. Separate Specifications Year by Year

In Tables A13, A14, and A15, we run the reduced form and first stage separately by year, as well as a pooled specification where all demographics interact with year dummy variables. There is no zip-level reduced form year-by-year because those data only cover the 2008 election. In the individual level reduced form (Table A13), the Fox News cable position coefficient is negative in every specification, but only significant in the pooled specification and marginally significant in 2004. Fox News position is negative and significant in every specification of the year-by-year zip-level first stage (Table A14). In the individual level year-by-year first stage (Table A15), the coefficient tends to be negative and noisy, though still negative and significant in the pooled specification.

TABLE A8—SECOND STAGE REGRESSIONS: NAES / CCES DATA (MSNBC)

	P(Vote for Republican Presidential Candidate)		
	(1)	(2)	(3)
Pred. MSNBC Mins.	−0.0012	−0.0006	−0.0004
	(−0.0047, 0.0018)	(−0.0028, 0.0018)	(−0.0019, 0.0012)
HH Income		0.4976	0.4249
		(0.4118, 0.5742)	(0.3594, 0.4869)
HH Income^2		−0.3775	−0.3189
		(−0.4394, −0.3071)	(−0.3830, −0.2563)
HH Income^3		0.0908	0.0784
		(0.0717, 0.1084)	(0.0598, 0.0969)
Age Quintile 2		0.0332	0.0255
		(0.0162, 0.0497)	(0.0107, 0.0396)
Age Quintile 3		0.0364	0.0236
		(0.0129, 0.0579)	(0.0052, 0.0407)
Age Quintile 4		0.0114	−0.0011
		(−0.0207, 0.0421)	(−0.0244, 0.0220)
Age Quintile 5		0.0418	0.0292
		(−0.0138, 0.0926)	(−0.0089, 0.0658)
White		0.0915	0.0781
		(0.0790, 0.1018)	(0.0677, 0.0897)
Black		−0.3513	−0.3282
		(−0.3714, −0.3305)	(−0.3488, −0.3097)
Hispanic		−0.0851	−0.0770
		(−0.1031, −0.0613)	(−0.0945, −0.0609)
College Degree		−0.0819	−0.0608
		(−0.0925, −0.0699)	(−0.0688, −0.0519)
Man		0.0776	0.0768
		(0.0637, 0.0917)	(0.0659, 0.0874)
Fixed Effects:	State-Year	State-Year	State-Year
Cable Controls:	Y	Y	Y
Demographics:	None	Individual	Extensive
Number of Clusters	6659	6523	5540
N	134,970	122,738	116,009
R^2	0.0286	0.1116	0.1365

Note: The first stage is estimated on all MediaMark/Simmons respondents. See first stage tables for description of instruments and control variables. Confidence intervals are generated from 500 independent STID-block-bootstraps of the first and second stage datasets. Reported lower and upper bounds give the central 95 percent interval of the relevant bootstrapped statistic. "Individual" demographics are measured at the level of the individual respondent. "Extensive" demographics include all of the same individual-level measures plus all of the zip-code-level demographics included in the zip-code-level analysis.

Table A9—Second Stage Regressions: Zip Code Voting Data

	2008 McCain Vote Percentage			
	(1)	(2)	(3)	(4)
Pred. Total FNC Mins.	0.158	0.101	0.147	0.104
	(0.040, 0.336)	(−0.024, 0.246)	(−0.417, 1.176)	(−0.192, 0.632)
Pred. Total MSNBC Mins.	0.024	−0.067	0.152	0.198
	(−0.182, 0.321)	(−0.288, 0.206)	(−1.718, 1.780)	(−0.944, 1.603)
Satellite FNC Mins.		−0.018		−0.027
		(−0.047, 0.007)		(−0.110, 0.035)
Satellite MSNBC Mins.		0.008		−0.063
		(−0.043, 0.051)		(−0.254, 0.149)
Fixed Effects:	State	State	County	County
Cable System Controls:	Y	Y	Y	Y
Demographics:	Extended	Extended	Extended	Extended
Number of Clusters	4814	3993	4729	4001
N	17,400	12,128	16,917	12,154
R^2	0.833	0.840	0.906	0.918

Note: The first stage is estimated using viewership data for all Nielsen TV households. See first stage tables for description of instruments and control variables. Observations in the first stage are weighted by the number of survey individuals in the zipcode according to Nielsen. Confidence intervals are generated from 1000 independent STID-block-bootstraps of the first and second stage datasets. Reported lower and upper bounds give the central 95 percent interval of the relevant bootstrapped statistic.

F6. Turnout

In Table A16, we check whether Fox News position correlates with a measure of turnout. We sum the zip code level votes cast across parties in the precinct level data, and divide this number by the age eighteen and over population from the Census at the zip code level.[54] The coefficients on Fox News position tend to be small and noisy except with county fixed effects, where we see a significant negative coefficient on Fox News position. The results suggest that the persuasion estimates in our main specifications could be coming from both the conversion of swing voters and some additional turnout, though it is difficult to say with any precision.

[54]We dropped any zip code whose implied turnout exceeded 1.

TABLE A10—SECOND STAGE REGRESSIONS: NAES / CCES DATA (FNC AND MSNBC)

	P(Vote for Republican Presidential Candidate)		
	(1)	(2)	(3)
Pred. FNC Mins.	0.0012	0.0033	0.0028
	(−0.0284, 0.0191)	(−0.0095, 0.0364)	(−0.0122, 0.0246)
Pred. MSNBC Mins.	−0.0009	−0.0001	0.0007
	(−0.8206, 0.5313)	(−0.3737, 0.5702)	(−0.5754, 1.0111)
HH Income		0.3401	0.2895
		(−1.0749, 0.9888)	(−0.9903, 1.0518)
HH Income^2		−0.3107	−0.2626
		(−0.5910, 0.2909)	(−0.5797, 0.2786)
HH Income^3		0.0838	0.0725
		(0.0201, 0.1170)	(0.0144, 0.1067)
Age Quintile 2		−0.0062	−0.0100
		(−0.3703, 0.1568)	(−0.3410, 0.2123)
Age Quintile 3		−0.0407	−0.0448
		(−0.7482, 0.2699)	(−0.6912, 0.3513)
Age Quintile 4		−0.0999	−0.1006
		(−1.0900, 0.3443)	(−1.0540, 0.4832)
Age Quintile 5		−0.1839	−0.1704
		(−2.2494, 0.7464)	(−1.9622, 0.9913)
White		0.0545	0.0513
		(−0.2811, 0.2014)	(−0.1827, 0.1886)
Black		−0.3828	−0.3624
		(−0.6832, −0.2501)	(−0.6602, −0.1681)
Hispanic		−0.0445	−0.0494
		(−0.2073, 0.3334)	(−0.2063, 0.2140)
College Degree		−0.0585	−0.0468
		(−0.1398, 0.1646)	(−0.1145, 0.0733)
Man		0.0398	0.0415
		(−0.2973, 0.1993)	(−0.2918, 0.2496)
Fixed Effects:	State-Year	State-Year	State-Year
Cable Controls:	Y	Y	Y
Demographics:	None	Individual	Extensive
Number of Clusters	6659	6523	5540
N	134,970	122,738	116,009
R^2	0.0286	0.1116	0.1365

Note: The first stage is estimated on all MediaMark/Simmons respondents. See first stage tables for description of instruments and control variables. Confidence intervals are generated from 500 independent STID-block-bootstraps of the first and second stage datasets. Reported lower and upper bounds give the central 95 percent interval of the relevant bootstrapped statistic. "Individual" demographics are measured at the level of the individual respondent. "Extensive" demographics include all of the same individual-level measures plus all of the zip-code-level demographics included in the zip-code-level analysis.

TABLE A11—FIRST STAGE REGRESSIONS: NIELSEN DATA, SATELLITE AND CABLE SUBSCRIBERS

	MSNBC Minutes Per Week					
	(1)	(2)	(3)	(4)	(5)	(6)
FNC Position × cable	0.064	0.057	0.053	0.050	0.051	0.048
	(0.017)	(0.014)	(0.014)	(0.023)	(0.021)	(0.024)
FNC Position × sat	0.017	0.009	0.012	−0.011	−0.009	−0.014
	(0.014)	(0.014)	(0.014)	(0.026)	(0.027)	(0.032)
MSNBC Position × cable	−0.135	−0.136	−0.128	−0.087	−0.097	−0.094
	(0.025)	(0.019)	(0.017)	(0.026)	(0.026)	(0.030)
MSNBC Position × sat	−0.007	−0.004	0.003	0.019	0.011	0.021
	(0.017)	(0.015)	(0.015)	(0.047)	(0.047)	(0.054)
Has MSNBC Only × cable	16.940	17.030	18.032	14.733	14.526	13.202
	(2.274)	(2.137)	(2.566)	(2.954)	(3.004)	(3.225)
Has MSNBC Only × sat	2.483	2.026	0.933	2.293	1.844	1.342
	(1.598)	(1.563)	(2.017)	(2.529)	(2.560)	(3.268)
Has FNC Only × cable	−2.425	−2.828	−2.382	−0.812	−1.119	−0.482
	(0.849)	(0.786)	(0.870)	(1.191)	(1.133)	(1.477)
Has FNC Only × sat	−1.336	−1.845	−2.069	−0.388	−0.854	−1.070
	(0.793)	(0.805)	(0.931)	(1.159)	(1.218)	(1.531)
Has Both × cable	13.484	13.134	13.304	12.137	11.939	12.483
	(1.245)	(1.174)	(1.232)	(2.028)	(2.010)	(2.450)
Has Both × sat	−0.075	−0.585	−1.085	−1.006	−1.350	−2.056
	(0.980)	(0.966)	(1.098)	(1.768)	(1.818)	(2.120)
Fixed Effects:	State-Year	State-Year	State-Year	County-Year	County-Year	County-Year
Cable Controls:	Y	Y	Y	Y	Y	Y
Demographics:	None	Basic	Extensive	None	Basic	Extensive
Chow Test p-value	0	0	0	0.022	0.02	0.031
Number of Clusters	5630	5629	4701	5630	5629	4701
N	124,442	124,386	105,654	124,442	124,386	105,654
R^2	0.053	0.063	0.068	0.203	0.209	0.223

Note: Cluster-robust standard errors in parentheses (clustered by cable system). Positions are the ordinal position of FNC/MSNBC on the local cable system. The omitted category for the availability dummies is systems where neither FNC nor MSNBC is available. Cable system controls include the total number of channels on the system and the number of broadcast channels on the system. All controls (including fixed effects) are interacted with a dummy for the observation corresponding to satellite viewership. Observations are weighted by the number of survey individuals in the zipcode according to Nielsen.

TABLE A12—MSNBC CABLE POSITION COEFFICIENTS ON PREDICTED VIEWING / VOTING, AND 1996 REPUBLICAN VOTING AND CONTRIBUTIONS.

	Predicted Viewing		Predicted Voting		1996 Contributions		1996 Vote	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
MSNBC Position	−0.001	−0.008	0.036	0.034	0.0002	0.00003	0.0002	0.00004
	(0.007)	(0.010)	(0.013)	(0.016)	(0.0002)	(0.0002)	(0.0001)	(0.0001)
Fixed Effects:	State-Year	State-Year	State-Year	State-Year	State-Year	State-Year	State-Year	State-Year
Demographics:	Basic	Extended	Basic	Extended	Basic	Extended	Basic	Extended
Number of Clusters	5788	4830	6029	4814	4844	4830	5779	4830
N	71,129	59,551	22,509	17,400	59,843	59,551	70,971	59,551
R^2	0.757	0.734	0.403	0.340	0.146	0.176	0.464	0.571

Note: Cluster-robust standard errors in parentheses (clustered by cable system). Columns 1-4 regress predicted hours of MSNBC and predicted Republican vote share, respectively, on MSNBC cable position. The predicting regressions exclude MSNBC position but include the indicated set of demographic controls. Columns 5-8 regress indicators of pre-treatment political attitudes (1996 county-level Republican presidential vote share and 1996 zipcode-level Republican campaign contribution share) on MSNBC cable position.

TABLE A13—REDUCED FORM REGRESSIONS: NAES / CCES DATA, BY YEAR

	P(Vote for Republican Presidential Candidate)			
	2000	2004	2008	Interacted
FNC Cable Position	−0.0003	−0.0003	−0.0003	−0.0003
	(0.0002)	(0.0002)	(0.0002)	(0.0001)
MSNBC Cable Position	−0.0003	0.0004	−0.00001	0.0001
	(0.0002)	(0.0002)	(0.0001)	(0.0001)
Fixed Effects:	State	State	State	State
Cable Controls:	Y	Y	Y	Y
Demographics:	Extensive	Extensive	Extensive	Interacted
Number of Clusters	4404	3829	3194	5582
N	40,559	41,607	34,299	116,465
R^2	0.126	0.144	0.159	0.141

Note: Cluster-robust standard errors in parentheses (clustered by cable system). Columns (1)-(3) show the position coefficients when the model is run separately for each year. In column (4), the extensive demographic set is interacted with dummy variables for each year, allowing the demographic effects on voting to vary flexibly by year.

TABLE A14—FIRST STAGE REGRESSIONS: NIELSEN DATA, ALL HOUSEHOLDS, BY YEAR

	FNC Minutes Per Week				
	2005	2006	2007	2008	Interacted
FNC Cable Position	−0.180	−0.163	−0.187	−0.168	−0.177
	(0.040)	(0.039)	(0.038)	(0.040)	(0.028)
MSNBC Cable Position	0.087	0.088	0.011	0.055	0.064
	(0.037)	(0.035)	(0.032)	(0.033)	(0.024)
Has MSNBC Only	−3.041	−6.044	−6.526	−0.421	−3.832
	(7.221)	(5.404)	(5.458)	(12.119)	(4.246)
Has FNC Only	24.566	19.842	23.859	25.265	23.487
	(4.259)	(3.548)	(3.545)	(4.376)	(2.274)
Has Both	16.855	12.505	23.021	21.783	18.175
	(4.431)	(3.711)	(3.686)	(4.740)	(2.360)
Fixed Effects:	State	State	State	State	State
Cable System Controls:	Y	Y	Y	Y	Y
Demographics:	Extended	Extended	Extended	Extended	Extended x Year
Robust F-Stat	20.7	17.4	24.4	18	40.1
Number of Clusters	4640	4517	4394	4233	4830
N	14,872	14,840	14,933	14,896	59,541
R^2	0.208	0.204	0.221	0.213	0.213

Note: Cluster-robust standard errors in parentheses (clustered by cable system). Instrument is the ordinal position of FNC on the local system. The omitted category for the availability dummies is systems where neither FNC nor MSNBC is available. Columns (1)-(4) give the FNC position coefficient when the first stage model is run separately by year. In Column (5), the extensive demographic set is interacted with dummy variables for each year, allowing the demographic effects on viewership to vary flexibly by year. Observations are weighted by the number of survey individuals in the zipcode according to Nielsen.

Table A15—First Stage Regressions: MediaMark / Simmons Data, All Respondents, by Year

	FNC Hours Per Week									
	2000	2001	2002	2003	2004	2005	2006	2007	2008	Interacted
FNC Cable Position	−0.238	−0.129	−0.120	−0.055	−0.124	0.066	−0.271	−0.057	0.151	−0.102
	(0.066)	(0.089)	(0.097)	(0.103)	(0.108)	(0.128)	(0.126)	(0.120)	(0.128)	(0.045)
MSNBC Cable Position	0.005	−0.002	0.005	0.022	0.108	0.016	0.079	0.040	0.111	0.032
	(0.059)	(0.106)	(0.109)	(0.117)	(0.130)	(0.137)	(0.128)	(0.106)	(0.107)	(0.043)
System has FNC Only	23.888	30.039	22.633	12.435	34.952	−28.798	64.088	31.975	20.074	24.446
	(5.655)	(8.956)	(12.191)	(11.427)	(16.926)	(19.310)	(18.088)	(18.006)	(24.288)	(4.166)
System has MSNBC Only	2.267	5.431	−13.769	−15.302	−8.819	−85.713	18.710	−68.251	−26.497	0.754
	(5.513)	(7.553)	(11.564)	(13.546)	(20.321)	(25.021)	(28.166)	(18.173)	(19.997)	(3.867)
System has Both	19.748	21.321	17.707	0.457	29.839	−16.475	58.994	17.761	13.637	17.045
	(5.974)	(7.944)	(11.568)	(12.623)	(15.348)	(19.646)	(17.483)	(18.800)	(22.024)	(4.144)
Fixed Effects:	State	State	State	State	State	State	State	State	State	State
Cable System Controls:	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Demographics:	Extended	Extended	Extended	Extended	Extended	Extended	Extended	Extended	Extended	Extended x Year
Robust F-Stat	13	2.1	1.5	0.3	1.3	0.3	4.6	0.2	1.4	5.3
Number of Clusters	811	782	747	741	738	684	679	712	1330	2379
N	24,245	24,416	23,229	22,864	23,384	22,909	22,476	23,002	11,026	197,551
R^2	0.018	0.025	0.029	0.032	0.038	0.047	0.046	0.054	0.067	0.045

Note: Cluster-robust standard errors in parentheses (clustered by cable system). Instrument is the ordinal position of FNC on the local system. The omitted category for the availability dummies is systems where neither FNC nor MSNBC is available. Columns (1)-(9) run the model separately for each year. In Column (10), the extensive demographic set is interacted with dummy variables for each year, allowing the demographic effects on viewership to vary flexibly by year.

TABLE A16—REDUCED FORM REGRESSIONS: PRECINCT VOTING DATA, TURNOUT

	2008 Presidential Turnout					
	(1)	(2)	(3)	(4)	(5)	(6)
FNC Cable Position	0.036	−0.012	−0.008	−0.008	−0.020	−0.031
	(0.020)	(0.014)	(0.010)	(0.011)	(0.013)	(0.014)
MSNBC Cable Position	−0.006	0.010	−0.006	−0.002	−0.003	0.003
	(0.018)	(0.010)	(0.008)	(0.008)	(0.009)	(0.010)
Fixed Effects:	None	State	State	State	County	County
Cable System Controls:	Y	Y	Y	Y	Y	Y
Demographics:	None	None	Basic	Extended	Basic	Extended
Number of Clusters	5516	5516	5513	4508	5513	4508
N	20,390	20,390	20,353	16,274	20,353	16,274
R^2	0.020	0.196	0.404	0.465	0.522	0.596

Note: The dependent variable is turnout in the presidential election, measured as number of presidential votes cast divided by the voting-age population in the zip code. Cluster-robust standard errors in parentheses (clustered by cable system).

MORE ON CHANNEL POSITIONS

Our main arguments for the validity of channel positions as instrumental variables for the effect of watching cable news on voting Republican consisted of correlating channel positions with observable variables: demographics (aggregated in the manner they predict voting and viewership), pre-Fox News political variables, and satellite viewership of Fox News, together with the institutional narrative of the period 1992-2000 as leading to effective randomness in channel position assignment. In this section, we further probe the validity for the instrumental variables assumption. First, we show the first stage and satellite placebo for a variety of similarly positioned channels. Second, we show support for the validity of the satellite placebo test, by showing that cable and satellite subscribers have similar demographics. Third, we examine whether Fox News viewership is correlated with nearby or future Fox News positions. Fourth, we show that Fox News and MSNBC channel positions are highly correlated with the best available position on the system at the time they were added.

G1. First Stage for other Cable Channels

In Table A1, we display the coefficients on own-channel position for a variety of other cable channels, estimated in the individual-level viewership data. For each channel, we run a stacked regression where we interact cable channel position with dummy variables for whether the individual subscribers to cable or to satellite. As with the other checks on instrument validity, the results are mostly reassuring. 26 out of 32 channels have a significantly negative position effect on cable subscribers at 99% confidence (2 more, for a total of 28 out of 32 at 95% confidence). 9 out of 32 have a significantly negative cable channel position effect on satellite subscribers at 90% confidence (only 2 at 99%), suggesting some degree of endogenous positioning for these channels.

TABLE A1—FIRST STAGE REGRESSIONS FOR OTHER CHANNELS: MEDIAMARK / SIMMONS DATA, ALL RESPONDENTS

	Own Position Effect			Own Position Effect	
Channel	Cable	Satellite	Channel	Cable	Satellite
ABC Family	−0.0033	0.0001	FX	−0.0024	−0.0009
	(0.0007)	(0.0008)		(0.0004)	(0.0006)
A&E	−0.0033	0.0004	HGTV	−0.0037	−0.0022
	(0.0006)	(0.0010)		(0.0005)	(0.0009)
AMC	−0.0003	0.0008	History Channel	−0.0048	−0.0032
	(0.0006)	(0.0007)		(0.0007)	(0.0011)
Animal Planet	−0.0023	0.0001	Lifetime	−0.0021	−0.0030
	(0.0005)	(0.0009)		(0.0009)	(0.0012)
BET	−0.0015	−0.0001	MSNBC	−0.0034	−0.0005
	(0.0004)	(0.0008)		(0.0006)	(0.0008)
Bravo	−0.0038	−0.0003	MTV	−0.0009	−0.0011
	(0.0003)	(0.0004)		(0.0003)	(0.0005)
Cartoon Network	−0.0008	−0.0018	Nickelodeon	−0.0014	0.0005
	(0.0005)	(0.0008)		(0.0003)	(0.0006)
CMT	−0.0012	−0.0007	SyFy	−0.0039	−0.0005
	(0.0002)	(0.0003)		(0.0005)	(0.0008)
CNBC	−0.0017	−0.0004	Spike	−0.0007	−0.0014
	(0.0007)	(0.0009)		(0.0006)	(0.0008)
Comedy Central	−0.0021	0.0005	TLC	−0.0028	−0.0004
	(0.0005)	(0.0008)		(0.0005)	(0.0007)
Court TV	−0.0026	0.0003	TNT	−0.0043	−0.0021
	(0.0004)	(0.0007)		(0.0009)	(0.0012)
Discovery Channel	−0.0027	−0.0012	Travel Channel	−0.0022	−0.000004
	(0.0008)	(0.0012)		(0.0003)	(0.0003)
Disney	−0.0027	−0.0006	TV Land	−0.0015	−0.0014
	(0.0003)	(0.0006)		(0.0003)	(0.0004)
E!	−0.0020	−0.0004	USA	−0.0022	−0.0016
	(0.0004)	(0.0005)		(0.0007)	(0.0011)
ESPN2	−0.0021	0.0008	VH1	−0.0011	0.0001
	(0.0005)	(0.0009)		(0.0003)	(0.0004)
Food Network	−0.0035	−0.0015	Weather Channel	−0.0006	0.0025
	(0.0006)	(0.0010)		(0.0012)	(0.0017)

Note: Cluster-robust standard errors in parentheses (clustered by cable system). The main regressors are the ordinal position and availability of the indicated channel on the local cable system. All regressions include controls for individual and zipcode level demographics as well as cable system characteristics, and state-year fixed effects.

G2. Cable and Satellite Subscriber Observable Correlations

Across locations, satellite subscriber characteristics correlate strongly with cable subscriber characteristics. Table A2 shows the regression coefficients of mean satellite subscriber characteristics on mean cable subscriber characteristics in the same cable system territory, nearly all of which are positive and large. Since the means of these characteristics are measured with sampling error - as they are constructed from the television viewership survey samples - the OLS coefficients are attenuated. In the table, we address this measurement error problem in two ways.[55] First, we progressively restrict the regression to markets with more and more survey respondents as these markets will have less sampling error. Second, we instrument for the mean cable characteristic with lead and lagged mean cable characteristic. Survey respondents are sampled independently from year to year. Consistent with measurement error, the coefficients generally tend upwards to one when we restrict to system-years with more respondents. Furthermore, the IV coefficients are generally very close to one.

In the same vein, we can look directly at viewership patterns. Satellite viewers watch 1.2 fewer minutes per week of Fox News Channel on average relative to cable viewers (on an overall mean of 90 minutes). At the bottom of Table A2, we regress predicted mean viewership of satellite subscribers (predicted from demographics) on that of cable subscribers. We also regress the cable system territory mean residual viewership of satellite subscribers (net of demographics) on the cable system territory mean residual viewership of cable subscribers. Across the board, cable and satellite subscribers within the same cable system territory display strong correlations of both demographics and viewing behavior.

G3. Adding and Dropping Demographics

In Table A3, we show that the coefficients on FNC position in both the first stage viewership regression and the reduced form do not change substantially as we add or remove subsets of variables that are highly predictive of both voting Republican and watching FNC. For example, consider the zip code fraction of campaign contributions going to Republicans in 1996, before the arrival of FNC. This variable is an extremely strong predictor of Republican voting, with t-statistics exceeding 8. It is also a significant predictor of FNC viewership in 2008. However, including this variable on the right-hand side does not appreciably change the coefficients on FNC position in either the first stage or the reduced form.

[55] One could also dis-attenuate the coefficients as the variance induced by sampling is known. This exercise is complicated because each cable system-year has different sampling variance.

Table A2—Correlation of Observables between Cable and Satellite

Characteristic	N>0	N>10	N>50	N>100	IV
Black	0.649	0.733	0.836	0.978	1.043
	(0.0129)	(0.0141)	(0.0242)	(0.0405)	(0.0348)
Num Zips	5,843	4,685)	1,252	342	2,436
College	0.454	0.576	0.728	0.793	1.013
	(0.0165)	(0.0193)	(0.0371)	(0.0633)	(0.0707)
Num Zips	5,843	4,685)	1,252	342	2,436
HH Income	0.448	0.603	0.781	0.870	0.973
	(0.0150)	(0.0164)	(0.0287)	(0.0646)	(0.0656)
Num Zips	5,843	4,685)	1,252	342	2,436
Age	0.264	0.350	0.414	0.449	0.812
	(0.0162)	(0.0197)	(0.0411)	(0.0704)	(0.147)
Num Zips	5,843	4,685)	1,252	342	2,436
Hispanic	0.618	0.758	0.850	0.842	0.966
	(0.0143)	(0.0157)	(0.0250)	(0.0365)	(0.0380)
Num Zips	5,843	4,685)	1,252	342	2,436
Party ID R	0.104	0.285	0.448	0.588	1.348
	(0.0364)	(0.0567)	(0.127)	(0.215)	(0.626)
Num Zips	896	453)	78	25	361
Party ID D	0.165	0.274	0.341	0.548	1.348
	(0.0359)	(0.0583)	(0.126)	(0.215)	(0.626)
Num Zips	896	453)	78	25	361
Predicted Fox News	0.737	0.833	0.961	0.967	1.004
	(0.0133)	(0.0137)	(0.0202)	(0.0291)	(0.0436)
Num Zips	5,843	4,685)	1,252	342	2,436
Predicted MSNBC Viewing	0.498	0.505	0.581	0.679	0.725
	(0.0118)	(0.0130)	(0.0254)	(0.0436)	(0.0563)
Num Zips	5,843	4,685)	1,252	342	2,436
Fox News Residual	0.0977	0.165	0.392	0.424	0.688
	(0.0195)	(0.0253)	(0.0510)	(0.0814)	(0.254)
MSNBC Residual	0.0814	0.117	0.381	0.567	0.320
	(0.0158)	(0.0190)	(0.0504)	(0.0873)	(0.129)

Note: Regression coefficients of demographic characteristics and cable news viewership of satellite subscribers on the characteristics of cable subscribers in the same cable territory-year in MediaMark / Simmons viewership data. The first column of coefficients uses all cable system territory-years. These coefficients are attenuated because the mean cable is constructed from samples of survey respondents which can be as few as 2 per cable system territory-year. The second column of coefficients restricts to those with more than ten surveyed respondents. The third column of coefficients restricts to those with more than fifty survey respondents. The fourth column of coefficients restricts to those with more than 100 survey respondents. The final column of coefficients are uses lead and lagged means of cable subscribers as instrumental variables, as respondents are sampled independently from year to year.

TABLE A3—COVARIATE INFLUENCE ON COEFFICIENT ESTIMATES: NIELSEN DATA.

	R^2 Change (Viewing)	R^2 Change (Voting)	First Stage	Reduced Form
Race	0.0001	0.075	−0.172	−0.019
			(0.028)	(0.009)
Density / Urban	0.00004	0.001	−0.170	−0.026
			(0.028)	(0.008)
Age	0.0004	0.003	−0.139	−0.025
			(0.028)	(0.008)
Education	0.0001	0.007	−0.178	−0.030
			(0.029)	(0.008)
Marital Status	0.0001	0.012	−0.170	−0.034
			(0.028)	(0.009)
1996 Voting / Contribs.	0.010	0.056	−0.163	−0.023
			(0.027)	(0.009)
Religion	0.00001	0.005	−0.175	−0.022
			(0.029)	(0.008)
(No Demographics)	0.013	0.540	−0.075	0.004
			(0.039)	(0.020)
Number of Clusters	4830	4814	4830	4814
N	59,541	17,400	59,541	17,400

Note: Cluster-robust standard errors in parentheses (clustered by cable system). The first two columns are the decrease in R^2 resulting from excluding all variables in the listed group from the viewership and the voting regressions, respectively, relative to the value for the model with the complete (extended) set of controls. The third column shows the estimated first stage coefficient on FNC position when the corresponding group of demographic variables is excluded from the equation. The final column is the same exercise, for the reduced form equation. All regressions include the "Extended" demographic set, with the exception of the indicated group of variables, plus state-year fixed effects.

G4. Future and Nearby Channel Positions

We examine whether future cable news channel position predicts current viewership conditional on current position. If political tastes are shifting over time, and channel positions are endogenous but sticky, then future position should predict current viewership. A location which has become more Republican would watch more Fox News, but, if channel positions were endogenously tailored and sticky, their channel position may not have adjusted yet, so future position, after adjustment, would be informative about current ideology. The zip-level results for Fox News are in Table A4. Position in 2008 does not predict viewership in 2005, conditional on position in 2005.

We also examine whether Fox News position in nearby systems predicts local viewership. If unobserved political tastes were uncorrelated with local positions, then they should also be uncorrelated with nearby positions even though ideology and demographics are correlated nearby. For each zip code-year in the data, we found the nearest zip code in the data for that year which wasn't in the same cable system. The results are in Table A5. We do not see a significant correlation of nearby position on local viewership in our preferred specifications. In Table A6, we see that nearby positions also do not correlate with 2008 McCain vote share.

Table A4—First Stage Regressions: Nielsen Data, Future Position Placebo

	Cable Subscribers		All Households		Satellite Subscribers	
FNC Position in 2005	−0.2077	−0.1812	−0.0913	−0.0777	0.0827	−0.0320
	(0.0719)	(0.1194)	(0.0565)	(0.0836)	(0.1112)	(0.1785)
FNC Position in 2008	−0.0600	0.0173	−0.0691	0.0041	−0.1497	0.0279
	(0.0761)	(0.1129)	(0.0606)	(0.0814)	(0.1144)	(0.1727)
Fixed Effects:	State-Year	County-Year	State-Year	County-Year	State-Year	County-Year
Cable System Controls:	Y	Y	Y	Y	Y	Y
Demographics:	Basic	Extended	Basic	Extended	Basic	Extended
Number of Clusters	3837	3842	3969	3974	3785	3790
N	13,384	13,416	13,934	13,966	12,244	12,271
R^2	0.0958	0.3887	0.2122	0.4421	0.0521	0.2055

Note: Cluster-robust standard errors in parentheses (clustered by cable system). The outcome is Fox News minutes per week in 2005 among cable subscribers, all households, and satellite subscribers, respectively in columns (1)-(2), (3)-(4), and (5)-(6). We include only zip codes that had access to Fox News in 2005, and regress hours per week on both the actual position in 2005, and the future position in the same zip code in 2008. Observations are weighted by the number of survey individuals in the zipcode according to Nielsen.

Table A5—First Stage Regressions: Nielsen Data, All Households, Nearby Position

	FNC Minutes per Week					
	(1)	(2)	(3)	(4)	(5)	(6)
FNC Position	−0.1042	−0.0477	−0.1265	−0.1493	−0.0915	−0.1651
	(0.0400)	(0.0376)	(0.0264)	(0.0264)	(0.0317)	(0.0252)
FNC Pos. Nearby	−0.0452	−0.0213	−0.0227	−0.0185	−0.0022	−0.0110
	(0.0224)	(0.0218)	(0.0154)	(0.0159)	(0.0197)	(0.0139)
Fixed Effects:	Year	State-Year	State-Year	State-Year	County-Year	State-Year
Cable System Controls:	Y	Y	Y	Y	Y	Y
Demographics:	None	None	Basic	Extended	Extended	Ext.+Sat.Hrs.
Number of Clusters	5788	5788	5787	4829	4829	4759
N	70,755	70,755	70,707	59,145	59,145	51,711
R^2	0.0292	0.0725	0.1898	0.2126	0.4292	0.3769

Note: Cluster-robust standard errors in parentheses (clustered by cable system). FNC minutes per week (among all Nielsen households) are regressed on both the actual position and the position on a neighboring system. Regressions include controls for availability on both the actual and neighboring system. Observations are weighted by the number of survey individuals in the zipcode according to Nielsen.

TABLE A6—REDUCED FORM REGRESSIONS: ZIP CODE DATA, ALL HOUSEHOLDS, NEARBY POSITION

	2008 McCain Vote Percentage			
	(1)	(2)	(3)	(4)
FNC Position	0.0270	0.0270	−0.0204	−0.0084
	(0.0209)	(0.0209)	(0.0088)	(0.0085)
FNC Position in Nearby Zip	0.0036	0.0036	−0.0086	0.0039
	(0.0118)	(0.0118)	(0.0051)	(0.0053)
Fixed Effects:	State-Year	State-Year	State-Year	County-Year
Cable System Controls:	Y	Y	Y	Y
Demographics:	None	Basic	Extended	Extended
Number of Clusters	4996	4996	4222	4231
N	17,588	17,588	14,719	14,757
R^2	0.2914	0.2914	0.8434	0.9177

Note: Cluster-robust standard errors in parentheses (clustered by cable system). 2008 McCain vote share is regressed on both the actual position and the position on a neighboring system. Regressions include controls for availability on both the actual and neighboring system.

G5. Best Available Channel Position

We demonstrate one example of this historical influence in Table **??**. We regress the ordinal positions of Fox News and MSNBC on the system's best available ordinal position in 1998, along with a control for the overall size of the system - its total number of channels.[56] The best available position in 1998 is a strong predictor of the current position, *even though* the positioning data here extends through 2008. A system's channel configuration prior to the addition of Fox or MSNBC exerts a lasting influence on the positioning of Fox and MSNBC today.

TABLE A7—CORRELATION OF BEST AVAILABLE POSITION AND POSITION

	FNC	MSNBC
	(1)	(2)
Best Available Position	0.061	0.073
	(0.011)	(0.014)
Number of Channels	0.180	0.217
	(0.003)	(0.003)
Intercept	11.906	7.331
	(0.314)	(0.449)
N	67,186	51,416
R^2	0.289	0.294

Note: Ordinal channel position vs. best available ordinal channel position, among systems where the channel (MSNBC or Fox News) was added in 1998 or later. Standard errors clustered by cable system.

[56] Our lineup data begins in 1998, and hence we restrict the sample for this regression to cable systems that did not have Fox/MSNBC in 1998. "Best available" is defined as the lowest open slot (unoccupied by an existing channel) in the region of the lineup dedicated to cable (i.e. non-network and non-local-access) channels. We define the cable region by locating the positions of CNN, ESPN, TNT, and The Discovery Channel, and consider any open slot above at least one of those channels to be available.

Solution Algorithm for Viewership Problem

Define ρ_{ict} as the Lagrange multipliers associated with the non-negativity constraints on T_{ict}. By complementary slackness, if $\rho_{ict} > 0$ then $T_{ict} = 0$. From the first order condition, $\rho_{ict} = \lambda_{it} - \gamma_{ict}$ where λ_{it} is the Lagrange multiplier on consumer i's budget constraint. Therefore, T_{ict} can be zero if and only if $\gamma_{ict} < \lambda_{it}$.

For all the channels with $T_{ict} > 0$, $\lambda_{it} = \gamma_{ict}/(1 + T_{ict})$. Additionally, each consumer faces a time-budget constraint, $\sum_c T_{ict} = B$, where B is the total time available (in our scaling, the number of hours in a week: 168). This gives a system of equations with solution:

$$\lambda_{it} = \frac{1 + \sum_{c^+} \gamma_{ic^+t}}{B + C^+}$$

where c^+ are the indices of the channels that i watches a positive amount, and C^+ is the total number of such channels. Given this result, the iterative solution is to replace the γ_{ict}'s below the cutoff $(1 + \sum_c \gamma_c)/(B + C)$ with zero. If there were any γ_{ict}'s below this threshold, we now have a new cutoff defined by the remaining positive γ_{ict}'s, and we repeat the process again. There are at most C steps of this until we hit the final set of positive γ_{ict}'s, at which point we compute the times watched as:

$$T_{ict} = (T + C^+)\frac{\gamma_{ict}}{\sum_{c^+} \gamma_{ic^+t}} - \mathbf{1}(\gamma_{ict} > 0)$$

Comparison of Regression Coefficients in Real and Simulated Data

Table A1—Estimated and Simulated Coefficients, Individual First Stage

	CNN Hours		FNC Hours		MSNBC Hours	
Regressor	Real	Simulated	Real	Simulated	Real	Simulated
CNN Position	-0.0038	-0.0084	-0.0009	0.0008	-0.0007	0.0003
FOX Position	0.0015	-0.0001	-0.0015	-0.0067	0.0014	-0.0003
MSN Position	0.0001	-0.0001	0.0006	0.0003	-0.0027	-0.0035
FOX Only	0.0389	-0.0084	0.3844	1.3971	-0.0476	0.0487
MSN Only	-0.0057	-0.0146	0.0165	0.1491	0.3546	0.7967
Both Available	0.0064	-0.0252	0.2806	1.3316	0.2769	0.7760
Number of Channels	0.0007	0.0001	0.0002	0.0003	-0.0003	-0.0003
Number of Broadcast Channels	-0.0079	-0.0044	-0.0060	-0.0032	0.0004	-0.0016
Age Quintile 2	0.2560	0.2859	0.1799	0.2885	0.0915	0.1503
Age Quintile 3	0.4167	0.4002	0.3610	0.2521	0.1395	0.1383
Age Quintile 4	0.6060	0.5935	0.5227	0.4636	0.2059	0.1925
Age Quintile 5	1.2475	1.1083	1.0711	1.1149	0.3790	0.4104
Income	0.6725	0.3916	0.7089	-0.0500	0.3998	0.1508
Income^2	-0.2374	-0.0971	-0.3055	-0.3782	-0.1482	-0.2310
Income^3	0.0227	0.0100	0.0324	0.0706	0.0149	0.0383
White	-0.1579	-0.1960	0.1774	0.3106	-0.0098	0.0229
Black	0.0444	-0.0012	0.1722	-0.1412	0.0497	-0.0160
Hispanic	-0.1756	-0.1687	-0.1728	-0.1591	-0.0938	0.0106
College Graduate	0.1865	0.1524	-0.1195	-0.0883	0.0632	0.1168
Man	0.1394	0.1312	0.1750	0.1325	0.0884	0.0986
1996 County R Share	-0.1976	0.0011	0.6419	-0.0310	-0.0223	0.0059

Note: Comparison of regression coefficients in real data and simulations: first stage regression at the individual level. Dependent variable is individual-level hours watched of each channel.

This section reports the fit of the indirect inference estimation routine. Tables A1 and A2 report the individual and zip-code level first stage regression coefficients, respectively. Table A4 reports the auxiliary regression of an indicator for watching any of the channel on individual demographics and cable positions. Tables A5 and A6 report the second stage IV and OLS regressions at the individual and zip levels.

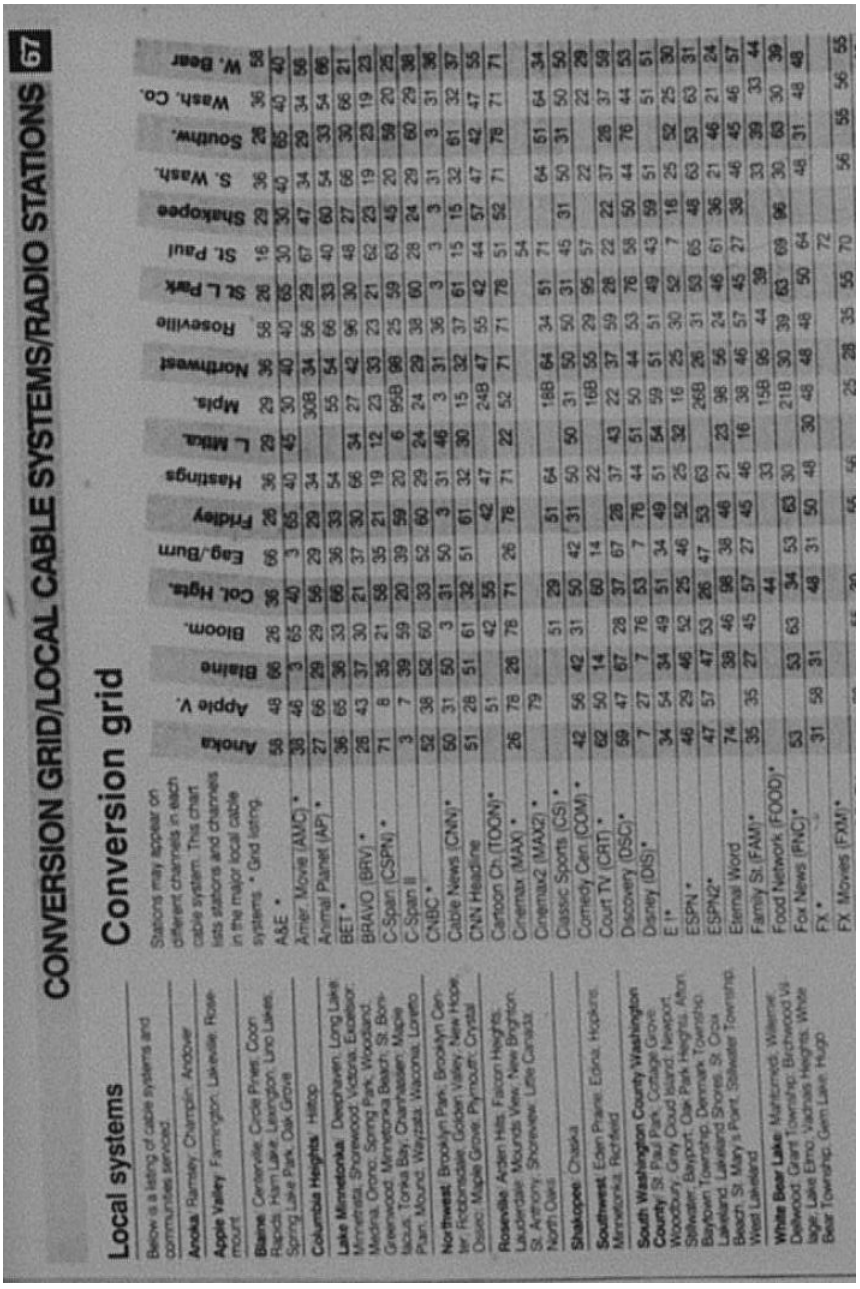
GSS Polarization Benchmark

We use the General Social Survey to construct a mass polarization measure for the US between 1996 and 2014. We apply the Esteban and Ray (1994) measure to a distribution of ideology scores created from answers to a battery of questions for which we can comfortably assign an ideology to the multiple choice answer. For example, a series of questions begins with the opening "We are faced with many problems in this country, none of which can be solved easily or inexpensively. I'm going to name some of these problems, and for each one I'd like you to name some of these problems, and for each one I'd like you to tell me whether you think we're spending too much money on it, too little money, or about the right

amount." They then ask about "Improving and protecting the environment," with answer options of "too little," "about right," and "too much." We assign "too little" to be an answer that is Democrat (contributing a value of -1 to the individuals overall score) and "too much" as Republican (contributing a value of +1 to the individuals overall score), while "about right" (contributing a zero to the individuals overall score). We use 12 questions about questions more related to taxes, spending, and regulations, and 19 questions more related to social issues and values.[57] We then create an aggregate score for each individual equal to the sum of the economic score divided by 12 and the social score divided by 19. We then calculate the Esteban-Ray measure to the distribution of these scores for each year available. Figure A1 plots these measures from 1996 to 2014. The measures are basically flat from 1996 to 2004, then the social score rises from 2004 to 2014 which drives a modest increase in the overall score over the same time period.

[57]The variables names for the economic questions are: natenvir, natheal, natcity, natfare, tax, eqwlth, confinan, conbus, conlabor, helppoor, helpnot, and helpsick. The same for the social questions are: reliten, abdefect, abnomore, abhlth, abpoor, abrape, absingle, abany, spkhomo, colhomo, libhomo, spkath, colath, libath, conclerg, grass, pornlaw, xmarsex, and homosex.

FIGURE A1. CABLE CONVERSION CHART FROM MINNEAPOLIS STAR-TRIBUNE IN OCTOBER 2000



CONVERSION GRID/LOCAL CABLE SYSTEMS/RADIO STATIONS 67

Local systems

Conversion grid

Below is a listing of cable systems and communities serviced.

Anoka Ramsey, Champlin, Andover

Apple Valley Farmington, Lakeville, Rosemount

Blaine Centerville, Circle Pines, Coon Rapids, Ham Lake, Lexington, Lino Lakes, Spring Lake Park, Oak Grove

Columbia Heights Hilltop

Lake Minnetonka Deephaven, Long Lake, Minnetrista, Shorewood, Victoria, Excelsior, Medina, Orono, Spring Park, Woodland, Greenwood, Minnetonka Beach, St. Bonifacius, Tonka Bay, Chanhassen, Maple Plain, Mound, Wayzata, Waconia, Loretto

Northwest Brooklyn Park, Brooklyn Center, Robbinsdale, Golden Valley, New Hope, Osseo, Maple Grove, Plymouth, Crystal

Roseville Arden Hills, Falcon Heights, Lauderdale, Mounds View, New Brighton, St. Anthony, Shoreview, Little Canada, North Oaks

Shakopee Chaska

Southwest Eden Prairie, Edina, Hopkins, Minnetonka, Richfield

South Washington County Washington County, St. Paul Park, Cottage Grove, Woodbury, City Cloud Island, Newport, Stillwater, Bayport, Oak Park Heights, Afton, Baytown Township, Denmark Township, Lakeland, Lakeland Shores, St. Croix Beach, St. Mary's Point, Stillwater Township, West Lakeland

White Bear Lake Mahtomedi, Willernie, Dellwood, Grant Township, Birchwood Village, Lake Elmo, Vadnais Heights, White Bear Township, Gem Lake, Hugo

Stations may appear on different channels in each cable system. This chart lists stations and channels in the major local cable systems. • Grid letting

	Anoka	Apple V.	Blaine	Bloom.	Col. Hgts.	Eag./Bum	Fridley	Hastings	L. Mtka.	Mpls.	Northwest	Roseville	St. L. Park	St. Paul	Shakopee	S. Wash.	Southw.	Wash. Co.	W. Bear
A&E •	38	46	3	65	40	3	65	40	45	30	40	40	65	30	30	40	65	40	40
Amer. Movie (AMC) •	27	66	29	29	56	29	29	34		308	34	56	29	67	47	34	29	34	56
Animal Planet (AP) •	36	66	29	33	66	36	33	54		55	54	66	33	40	60	27	66	66	21
BET •	28	43	37	30	21	37	30	66	34	27	42	96	30	48	27	66	30	66	21
BRAVO (BRV) •	71	8	35	21	58	35	21	19	12	23	33	23	21	62	23	19	23	19	23
C-Span (CSPN) •	3	7	39	59	20	39	59	20	6	958	98	25	59	63	45	20	59	20	25
C-Span II	52	38	52	60	33	52	60	29	24	24	29	38	60	28	24	29	60	29	38
CNBC •	50	31	50	3	31	50	3	31	46	3	31	36	3	3	3	31	3	31	36
Cable News (CNN) •	51	28	51	61	32	51	61	32	30	15	32	37	61	15	15	32	61	32	37
CNN Headline		51		42	55		42	47		248	47	55	42	44	57	47	42	47	55
Cartoon Ch. (TOON) •	26	76	26	76	71	26	76	71	22	52	71	71	76	51	52	71	76	71	71
Cinemax (MAX) •		79												54					
Cinemax2 (MAX2) •				51	29		51	64		188	64	34	51	71		64	51	64	34
Classic Sports (CS) •	42	56	42	31	50	42	31	50	50	31	50	50	31	45	31	50	31	50	50
Comedy Cen. (COM) •	62	50	14		60	14		22		168	55	29	95	57		22		22	29
Court TV (CRT) •	69	47	67	28	37	67	28	37	43	22	37	59	28	22	22	37	28	37	59
Discovery (DSC) •	7	27	7	76	53	7	76	44	51	50	44	53	76	58	50	44	76	44	53
Disney (DIS) •	34	54	34	49	51	34	49	51	54	59	51	51	49	43	59	51		51	51
E! •	46	29	46	52	25	46	52	25	32	16	25	30	52	7	16	25	52	25	30
ESPN •	47	57	47	53	26	47	53	63		268	26	31	53	65	45	63	53	63	31
ESPN2 •	74		38	46	98	38	46	21	23	96	56	24	46	61	36	21	46	21	24
Eternal Word	35	35	27	45	57	27	45	46	16	38	46	57	45	27	38	46	45	46	57
Family St (FAM) •	53		53	63	34	53	63	30		218	30	39	63	69	96	30	63	30	39
Food Network (FOOD) •	31	58	31		48	31	50	48	30	48	48	48	50	64		48	31	48	48
Fox News (FNC) •														72					
FX •										25	28	35	55	70		56	55	56	55
FX Movies (FXM) •																			

Note: The rows correspond to cable channels. The columns correspond to local cable systems. According to the Factbook data used in DVK, Minneapolis did not have access to the Fox News Channel by November 2000. The Nielsen FOCUS data indicate that Minneapolis did have access to Fox News Channel in 1999, and also correctly indicates the channel number of 21B.

Table A2—Estimated and Simulated Coefficients, Zip Code First Stage

	CNN Hours		FNC Hours		MSNBC Hours	
Regressor	Real	Simulated	Real	Simulated	Real	Simulated
CNN pos	-0.0027	-0.0054	0.0019	0.0010	0.0002	0.0001
FOX pos	0.0009	0.0003	-0.0033	-0.0043	0.0006	0.0000
MSN pos	0.0003	-0.0001	0.0009	0.0001	-0.0014	-0.0021
FOX Only	-0.0670	-0.0930	0.3723	0.8305	-0.0620	-0.0135
MSN Only	-0.0050	-0.0178	-0.0202	0.0103	0.1278	0.4004
Both Available	-0.1280	-0.0927	0.2780	0.8220	0.0821	0.3688
Number of Channels	-0.0001	-0.0002	-0.0004	-0.0004	-0.0002	0.0000
Number of Broadcast Channels	-0.0011	0.0042	-0.0051	0.0035	0.0008	0.0008
Nielsen Diary Market	-0.0559	0.0168	-0.1067	0.0029	-0.0356	0.0094
Log Population Density	-0.0066	-0.0046	-0.0177	-0.0073	0.0012	-0.0017
Percent Black	0.2616	0.2061	-0.4682	-0.2786	0.0475	0.1434
Percent Asian	0.0679	0.5497	-0.2136	0.0250	-0.1004	0.0310
Percent Other	0.3632	0.3221	0.5660	-0.3146	0.2717	0.1272
Percent Hispanic	-0.0414	-0.1372	-0.4037	-0.0934	-0.0753	-0.0444
Percent Male	0.2960	0.4305	2.1267	0.3432	0.3573	-0.0822
Percent Age 10-20	0.1428	-0.3086	-1.2863	-0.7501	0.3658	0.8269
Percent Age 20-30	0.4524	-0.1326	-1.6617	-0.2846	0.2384	0.6719
Percent Age 30-40	0.6939	-0.4529	-2.4931	-0.1636	0.4895	1.0751
Percent Age 40-50	0.3961	0.4848	-2.9705	-0.5794	-0.0944	0.4682
Percent Age 50-60	-0.0249	0.4462	-1.4036	-0.5868	0.3974	0.7346
Percent Age 60-70	1.6054	-0.1694	1.9905	-0.6619	0.8937	0.3962
Percent Age 70-80	1.8094	1.2224	3.4916	2.1240	0.8530	1.7386
Percent Age 80+	2.4572	0.3938	-1.0987	0.2538	1.0178	0.7552
Income Decile 2	0.0066	-0.0227	0.0439	-0.0830	0.0050	-0.0103
Income Decile 3	0.0129	-0.0071	0.0369	-0.0680	-0.0054	0.0040
Income Decile 4	-0.0114	-0.0078	0.0656	-0.0859	-0.0086	-0.0158
Income Decile 5	-0.0190	0.0081	0.0295	-0.0497	-0.0186	0.0037
Income Decile 6	-0.0400	0.0031	0.0182	-0.0917	-0.0250	0.0086
Income Decile 7	-0.0464	0.0235	0.0113	-0.0997	-0.0288	0.0144
Income Decile 8	-0.0480	0.0328	0.0228	-0.0840	-0.0330	0.0006
Income Decile 9	-0.0550	0.0702	-0.0079	-0.1217	-0.0426	-0.0014
Income Decile 10	-0.0590	0.0965	0.0193	-0.1018	-0.0435	0.0114
Percent HS Grad	0.2279	0.2207	0.0923	0.4498	0.1484	0.1515
Percent Some College	0.4931	-0.0068	0.9744	-0.1557	0.2755	0.0096
Percent Bachelors'	0.3295	-0.0267	1.4768	-0.1671	0.2556	0.0551
Percent Post-Grad	0.8696	0.5791	0.0432	-0.2022	0.5092	-0.0535
Percent Suburban	0.0767	-0.1377	0.2993	-0.1306	0.0498	-0.0511
Percent Urban	0.0475	-0.1187	0.2100	-0.1009	0.0556	-0.0502
1996 County R Share	-0.2069	-0.0893	0.5183	-0.0683	-0.1123	-0.0214

Note: Comparison of regression coefficients in real data and simulations: first stage regression at the individual level. Dependent variable is individual-level hours watched of each channel.

TABLE A3—ESTIMATED AND SIMULATED COEFFICIENTS, INDIVIDUAL FIRST STAGE ZERO'S

	CNN-Zero		**FNC-Zero**		**MSNBC-Zero**	
Regressor	Real	Simulated	Real	Simulated	Real	Simulated
CNN Position	-0.0008	-0.0001	-0.0002	0.0003	-0.0002	0.0002
FOX Position	0.0003	-0.0001	-0.0005	-0.0004	0.0004	-0.0001
MSN Position	0.0000	0.0000	0.0002	0.0000	-0.0009	-0.0003
FOX Only	0.0160	0.0038	0.0824	0.2340	-0.0067	0.0038
MSN Only	0.0294	0.0021	0.0067	0.0002	0.1227	0.1870
Both Available	0.0171	0.0049	0.0654	0.2307	0.0993	0.1840
Number of Channels	0.0003	0.0000	0.0003	0.0000	0.0001	-0.0001
Number of Broadcast Channels	-0.0019	-0.0009	-0.0019	-0.0007	-0.0007	-0.0004
Age Quintile 2	0.0568	-0.0025	0.0395	-0.0244	0.0306	-0.0027
Age Quintile 3	0.0967	0.1241	0.0842	0.1143	0.0435	0.0512
Age Quintile 4	0.1321	0.1685	0.1080	0.1469	0.0588	0.0771
Age Quintile 5	0.2199	0.2416	0.1687	0.1439	0.0835	0.0082
Income	0.3180	0.3405	0.2443	0.3408	0.2102	0.2630
Income^2	-0.1175	-0.1394	-0.0983	-0.0738	-0.0795	-0.0252
Income^3	0.0115	0.0129	0.0100	0.0066	0.0079	0.0002
White	-0.0257	-0.0060	0.0197	-0.0469	-0.0004	-0.0207
Black	0.0119	0.0260	0.0490	0.1034	0.0091	0.0549
Hispanic	-0.0436	-0.0482	-0.0382	-0.0226	-0.0350	-0.1113
College Graduate	0.0610	0.0772	-0.0181	-0.0175	0.0385	0.0343
Man	0.0432	0.0429	0.0475	0.0634	0.0371	0.0400
1996 County R Share	0.0200	-0.0094	0.1487	-0.0071	0.0327	-0.0049

TABLE A4—

Note: Comparison of regression coefficients in real data and simulations. Dependent variable is an (individual-level) indicator for watching any of the channel.

Table A5—Estimated and Simulated Coefficients, Individual Second Stage

	Vote Intention - IV		**Vote Intention - OLS**	
Regressor	Real	Simulated	Real	Simulated
FOX Predicted Hours	0.2127	0.0445		
CNN pos	0.0000	0.0002		
MSN pos	-0.0001	0.0000		
CNN Most-Watched			-0.0912	-0.0578
FOX Most-Watched			0.3073	0.2533
MSN Most-Watched			-0.0971	-0.0218
FOX Only	-0.0697	-0.0199	-0.0215	0.0224
MSN Only	-0.0017	0.0002	0.0163	0.0041
Both Available	-0.0522	-0.0212	-0.0066	0.0264
Number of Channels	-0.0006	0.0001	-0.0007	0.0000
Number of Broadcast Channels	0.0006	0.0000	-0.0005	0.0001
Age Quintile 2	-0.0103	0.0733	0.0467	0.0804
Age Quintile 3	-0.0489	0.0420	0.0658	0.0449
Age Quintile 4	-0.1096	-0.0143	0.0136	0.0068
Age Quintile 5	-0.2018	0.0044	0.0310	0.0580
Income	0.3104	0.5407	0.4242	0.4246
Income^2	-0.2918	-0.1149	-0.3043	-0.1010
Income^3	0.0803	0.0075	0.0707	0.0073
White	0.0443	0.1115	0.0899	0.1182
Black	-0.3662	-0.2804	-0.2920	-0.2697
Hispanic	-0.0277	-0.0772	-0.0859	-0.0797
College Graduate	-0.0522	-0.0940	-0.0508	-0.0759
Man	0.0367	0.0518	0.0427	0.0466
1996 County R Share	0.4810	0.0257	0.4894	0.0190

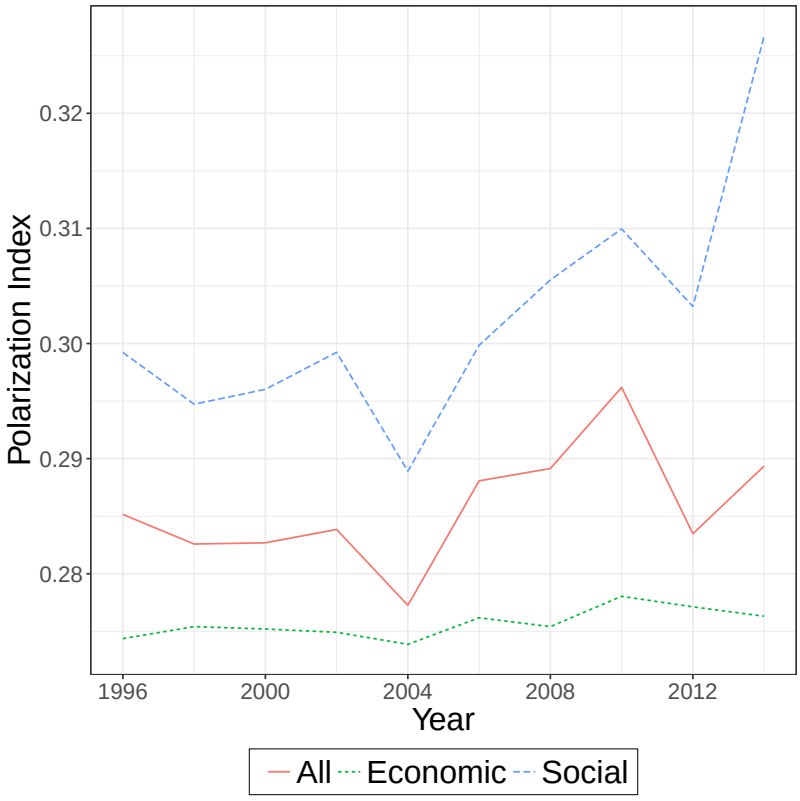
Note: Comparison of regression coefficients in real data and simulations. Dependent variable is individual-level Republican vote intention.

TABLE A6—ESTIMATED AND SIMULATED COEFFICIENTS, ZIP CODE SECOND STAGE

	Vote Intention - IV		**Vote Intention - OLS**	
Regressor	Real	Simulated	Real	Simulated
FOX Predicted Hours	0.0783	0.1002		
CNN pos	-0.0001	0.0003		
MSN pos	0.0000	0.0000		
CNN Hours			-0.0052	-0.0227
FOX Hours			0.0105	0.0240
MSN Hours			-0.0111	-0.0190
FOX Only	0.0007	0.0096	0.0306	0.0611
MSN Only	-0.0050	-0.0103	0.0073	-0.0199
Both Available	-0.0039	-0.0023	0.0143	0.0616
Number of Channels	-0.0001	0.0001	-0.0002	0.0000
Number of Broadcast Channels	0.0008	0.0000	0.0019	0.0002
Nielsen Diary Market	0.0090	0.0012	0.0151	-0.0052
Log Population Density	-0.0075	0.0020	-0.0086	0.0006
Percent Black	-0.4687	-0.3122	-0.5090	-0.3255
Percent Asian	-0.0133	-0.1085	-0.0337	-0.0945
Percent Other	-0.2625	-0.0986	-0.1716	-0.1677
Percent Hispanic	-0.1593	-0.0731	-0.2092	-0.0781
Percent Male	0.1447	0.1176	0.3167	0.2454
Percent Age 10-20	-0.0945	-0.1251	-0.6868	-0.2507
Percent Age 20-30	-0.4102	-0.2713	-0.8117	-0.4524
Percent Age 30-40	-0.4059	-0.3194	-1.2890	-0.4273
Percent Age 40-50	-0.0597	0.0332	-0.4025	-0.3862
Percent Age 50-60	-0.5314	-0.0808	-0.8885	-0.1065
Percent Age 60-70	-0.8083	-0.1636	-1.1453	-0.5558
Percent Age 70-80	-0.0943	-0.3253	0.0176	0.0176
Percent Age 80+	-0.2447	-0.2336	-0.7991	-0.3938
Income Decile 2	0.0253	0.0205	0.0500	0.0139
Income Decile 3	0.0354	0.0296	0.0625	0.0204
Income Decile 4	0.0374	0.0429	0.0687	0.0337
Income Decile 5	0.0416	0.0432	0.0702	0.0363
Income Decile 6	0.0450	0.0554	0.0773	0.0467
Income Decile 7	0.0578	0.0671	0.0941	0.0584
Income Decile 8	0.0670	0.0761	0.1010	0.0655
Income Decile 9	0.0815	0.1020	0.1074	0.0861
Income Decile 10	0.1001	0.1438	0.1197	0.1183
Percent HS Grad	-0.0425	0.0058	-0.0692	0.0690
Percent Some College	-0.0766	0.0244	0.0744	0.0225
Percent Bachelors'	-0.1721	0.0334	0.0001	0.0859
Percent Post-Grad	-0.4056	0.1130	-0.3799	0.0593
Percent Suburban	-0.0119	0.0205	0.0046	0.0117
Percent Urban	-0.0218	0.0109	-0.0064	0.0053
1996 County R Share	0.4572	0.0318	0.5034	0.0301

Note: Comparison of regression coefficients in real data and simulations. Dependent variable is individual-level Republican vote intention.

FIGURE A1. POLARIZATION IN THE GSS



Note: Esteban-Ray polarization measures computed using individual ideology scores constructed from responses to questions in the General Social Survey (GSS). The "Social" score includes only preferences on social policy questions like abortion, gay marriage, gun control, and so on. The "Economic" score includes only preferences on economic policy questions like taxes, international trade, business regulation, and so on. The "All" score combines both types.